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COMMONWEALTH OF MASSACHUSETTS

DIVISION OF FORESTS AND PARKS

ANNUAL REPORT

FISCAL YEAR 1982

GILBERT A. BLISS, DIRECTOR

The past year resulted in significant achievements in many Division programs. The specific Bureau reports will cover these matters. Other notable items are as follows:

WACHUSETT LEASE IS AWARDED

The Massachusetts Department of Environmental Management announced on September 30, 1981 that a decision had been made to issue a lease for the expansion of ski facilities at Wachusett Mountain State Reservation to Wachusett Mountain Associates, Inc., of Princeton.

On March 5, 1981 the Department announced its intention to proceed with expansion of the ski area at Wachusett Mountain State Reservation, in Princeton and Westminster.

Under the proposed expansion plan, the ski area, which presently encompasses 300 acres out of the Reservation's total 1,950 acres, will be enlarged to a maximum of 450 acres, increasing both slopes and lift capacity as well as providing new base facilities.

Notices relative to the prequalification of prospective lessees were mailed to a large list and publicly advertised just prior to June 30. This resulted in the selection of four firms to be invited for the submission of detailed proposals.

The conditions of the lease includes a rental fee based on a fixed percentage of annual gross revenues from all of the Lessee's

operations, plus an escalation clause of increasing payments based on increased revenues, plus the provision of significant capital benefits and continuing services in-kind. Payments will be made on an annual basis into two separate accounts. The first will be rental payments made directly to the Department of Environmental Management. The second will be payments made into a Land Acquisition Fund which, in the form of a reserve, will be available on a timely basis for the purchase of land deemed of interest to the Commonwealth for conservation purposes. This fund will be maintained in trust, by the Lessee and audited by the Department of Environmental Management.

The lease arrangements have been negotiated on a cooperative basis between the Lessee and D.E.M. and can be generally described as follows:

The Lessee initially was to:

1. Construct a Water Waste Treatment Plant serving the full development facilities and which will also tie into and serve the existing state-run visitor center. This facility will be deeded to the Commonwealth free of charge.
2. Grant to the Commonwealth approximately 5 to 10 acres of privately owned land adjacent to the State Reservation on which the WWTP will be located.
3. Underwrite the cost of operating the WWTP for the life of the lease.

The lessee on March 16, 1982 decided to construct a sewage line to the City of Fitchburg, negating the need for a plant on site. The lease was modified to reflect this. The lessee will also convey at no cost to the Commonwealth approximately 8 acres of critical land which now lies essentially within the State Reservation.

The value of these grants, facilities and services in-kind is estimated to lie in the range of 750,000 to 900,000 dollars.

Further, the Lessee has agreed to make the following annual rental fee payments:

1. A \$10,000 annual minimum rental payment to the Department of Environmental Management.
2. A \$5,000 annual minimum payment to the Land Acquisition Fund.
3. Annual payments equal to 2% of the Lessee's annual gross revenues.
4. An escalation of payment to the Land Acquisition Fund of .5% and 1% respectively at certain pre-agreed upon levels of gross income realization.

Based upon the evaluation of the Lessee's 5-year pro-forma projection of gross revenues, it appears that direct dollar payment to the Commonwealth could lie in the range of from approximately \$250,000 to \$300,000 for the 5-year period. Added to the value of grants, facilities and services in-kind provided by the Lessee, this would bring a total of from approximately 1 million dollars to 1,200,000 dollars for the 5-year period, which would represent, on the average, payments, grants, etc., equivalent to approximately 9% of the Lessee's projected gross income.

The breakdown of direct dollar receipts from the Lessee would, for the 5-year period, total up essentially as follows:

1. Rental payments to the Commonwealth of approximately \$200,000 to \$250,00.
2. Direct payments to the Land Acquisition Fund of approximately \$50,000. Including the estimated value of land grants, total contributions to the Land Acquisition Fund would fall in

the range of from approximately \$200,000 to \$325,000 for the first 5-year period.

Intensive planning and design, together with the close scrutiny by the Monitoring Board took place immediately following the lessee selection.

Groundbreaking for the project was slated for July 15, 1982.

KENTON A. BEAUJEAN

Kenton A. Beaujean, 52, Chief Fire Warden for the Commonwealth of Massachusetts, died May 28 at the Lahey Clinic in Burlington, Massachusetts after a brief illness. A native of Lee, Massachusetts, he was a forestry graduate of the Stockbridge School of Agriculture in Amherst, MA. He lived in Lee until he moved to Topsfield in 1966. Mr. Beaujean had worked for the Department of Environmental Management since 1951. He served with the Department's Division of Forests and Parks in a number of key roles including that of Chief of Recreation, Chief Forester, and as Chief Fire Warden until his untimely death. He was a member of the Society of American Foresters since 1958.

Ken is missed by all who knew him and worked with him over the years. He leaves a big pair of shoes to fill.

B U R E A U R E P O R T S

BUREAU OF RECREATION -

CHARLES H. DANE, CHIEF

BUREAU OF FOREST DEVELOPMENT -

THOMAS F. QUINK, CHIEF FORESTER

BUREAU OF INSECT PEST CONTROL -

CHARLES S. HOOD, CHIEF SUPERINTENDENT

BUREAU OF FIRE CONTROL -

ANTONIO CASTRO, CHIEF FIRE WARDEN

BUREAU OF URBAN SERVICES -

ROBERT FREEDMAN, COORDINATOR

ANNUAL REPORT
FISCAL YEAR 1982

BUREAU OF RECREATION
CHARLES H. DANE, CHIEF

There was a very slight decrease in FY 1982 attendance when compared with FY 1981. This can be attributed to some refinements in our attendance keeping procedures and to some very rainy weather in the Spring. Camping attendance increased while day use was reduced. Overall income showed a good increase due to more camping and increased fees.

This becomes very important as we enter FY 1983 since newly adopted legislation allows us to directly utilize income in excess of five million dollars for maintenance of our facilities. This gives us a very real opportunity to help ourselves physically, so pray for sunshine and collect those fees!

SEASONAL HIRING

Recall

The Bureau of Recreation was again allowed to hire previous employees for certain long term seasonal positions. These experienced people constitute the backbone of our seasonal staff and contribute greatly to the operation of our facilities.

Students

The Bureau of Recreation filled selected positions on a statewide basis with college students majoring in law enforcement, environmental studies and recreation management. Positions were matched with students in an effort to give them the best possible

on-the-job training in their chosen field of study. This in turn gives the Bureau the benefit of the students training plus some very interested and enthusiastic employees.

Lifeguards

The Bureau's ability to attract qualified lifeguards improved over last year with some regions reporting full staffing, but qualified lifeguards continue to be in short supply in some of our more remote areas. All normal recruiting methods were used as well as newspaper and radio ads, but some positions were never filled, necessitating the payment of overtime in order to more adequately protect the public.

LAW ENFORCEMENT

The need for uniformed law enforcement officers at many of our facilities is a necessity to protect the well being of our patrons, our employees and to maintain order. The Division has continued its policy of supplying trained law enforcement people to those areas that require such attention.

The Division, being conscious of the financial burdens that such treatment entails, has made every effort to minimize the number of facilities and the number of shifts covered without jeopardizing proper management of the areas. This program has served to satisfy many of our visitors by not only affording immediate response to problems, but also "peace of mind" which can only come from the visibility of law enforcement personnel.

The 16 Division employees, who have police power, were used to fill more of the available overtime shifts this year. As soon as all of these officers have received the necessary permits to

carry "police equipment", it is hoped that they will participate frequently in this coverage.

Curt Rudge, acting in his capacity as a Forests and Parks Police Officer, began a mounted patrol at Hopkinton State Park to assist in controlling the large number of day-use visitors. This patrol, using a horse borrowed from the Massachusetts State Police, is on an experimental basis and evaluations will be made in the autumn of 1982.

The State Police Mounted Unit, which has been very successful at Walden Pond is preparing to expand and will shortly be working at Salisbury Beach State Reservation and hopefully in other areas as needed. These mounted patrols have proven to be extremely effective in controlling crowds and reducing problems.

RULES AND REGULATIONS

The Division's annual Rules and Regulations hearings were held on March 9, 1982. The hearings took place at five locations across the state, as well as in Boston. As required by Chapter 30A, the State Administrative Programming Act, 21 days public notice was given prior to holding the hearings. This notice appeared as legal advertising in six newspapers. Written comments on proposed changes to the regulations were accepted by the Division until March 30, 1982.

Changes encompassed by this year's hearings primarily made more specific a number of regulations.

The Executive Office of Administration and Finance filed emergency regulations on four different dates that dealt with fee increases at D.E.M. facilities.

5/17/82 -- Fee increases at Swimming Pools -- Child \$.25
Adult \$.50

2/1/82 -- Fee increase - Day-Use \$3.00/vehicle
Season Pass \$20.00/vehicle

8/23/81 -- Fee increase - Camping - Type I - \$6.00/day
Type II - \$5.00/day
Nickerson Overflow- \$6.00/day

Dumping Station Use by Non-Campers - \$7.00

Camping Site Electric or Sewerage - \$2.00
Hook-Up Charge

8/30/81 -- Fee increases:

- Rink rental -- \$55.00/50 minute hour
- Public Skating Adults -- \$1.00 (all times)
- Public Skating Juveniles - \$.50 (mornings and afternoons).
- Public Skating Juveniles - \$1.00 (evenings)
- Public Skating Spectators- \$.50

These fee increases will enable the Division to move more nearly in line with our legislated mandate of attempting to balance income and expenses.

SPECIAL USER PERMITS

In FY 1982 over 400 Special User Permits were issued. These permits allow "Red Feather" and other non-profit organizations to use our day-use facilities free of charge. The permit is good for one year and may be used any weekday. There are no restrictions as to the number of times such a permit can be used. Figures for statewide use are not available at this time, but as

an example Region 2 (Southeastern Massachusetts) handled 146 permit days and 19,012 people. This places an appreciable pressure on certain facilities with no income to balance against the use.

SENIOR CITIZEN USE OF FACILITIES

Massachusetts residents 62 years of age and older are entitled to day-use privileges at any of our facilities, free of charge. In Fiscal Year 1982, the Bureau of Recreation issued 1,516 Senior Citizen Passes. This is considerably lower than the 2,405 issued in 1981 and the 2,490 issued in 1980.

HANDICAPPED

In Fiscal Year 1982, the Bureau continued its policy of allowing handicapped persons, and those accompanying them, to enter our day-use facilities free of charge.

A special permit from the Director of Forests and Parks or a license plate bearing the "HP" or "V" designation is required to be displayed as proof of disability.

BOSTON HARBOR ISLANDS STATE PARK TRANSPORTATION PROGRAM

The Bureau of Recreation continued its program of providing free water taxi service from Georges Island to five of the other islands within the state park system. The taxi ran seven days a week during peak summer months and transported over 13,800 persons.

The Bureau also continued to subsidize senior citizens and non-profit groups transportation to the islands. A total of 6,000 persons were given access to this unique State Park, who otherwise would not have been able to afford it. This was accomplished by the Bureau paying private boat lines for

transporting of these persons from Boston to Georges Island where the smaller taxis took over.

HOST FAMILY PROGRAM

The 1982 Host Family Program, now in its third year, appears destined to become a permanent fixture in the Massachusetts Forests and Parks system.

Because of the success of this program last year, it was decided to add three parks - Myles Standish State Forest in South Carver, Scusset Beach State Reservation in Sandwich and Willard Brook State Forest in Ashby - to the seven previously participating areas: D.A.R. State Forest in Goshen, Harold Parker State Forest in North Andover, Lake Dennison State Park in Baldwinville, Massasoit State Park in Taunton, Nickerson State Park in Brewster, Shawme Crowell State Forest In Sandwich and Tolland State Forest in Otis. Of the three new areas only Willard Brook did not have a Host Family all summer long.

In this program a family that is familiar with the park and its surroundings is offered a free campsite in exchange for light maintenance duties and the dissemination of information to fellow campers.

The families that participated in 1982 seemed to be very enthusiastic as well as conscientious. They have made significant contributions to the services offered in the parks they worked at thus helping to make the park a more enjoyable place to visit.

CAPE COD RAIL TRAIL

The full 19.3 mile bicycle and equestrian trail from the Town of Dennis to the entrance of the Cape Cod National Seashore in Eastham, was officially dedicated on September 25, 1981.

This trail has already experienced a tremendous number of users year-round. A former railroad bed, which in the past served as a means for freight and passengers to move along Cape Cod, is now being used by bicyclists, nature lovers, hikers, horseback riders, joggers and even cross-country skiers.

This trail passes through a portion of popular Nickerson State Park and is being heavily used by both residents and summer visitors.

APPALACHIAN TRAIL

During Fiscal Year 1982 continued progress was made toward the goal of acquiring and protecting the Appalachian Trail in Massachusetts. Nine purchases totaling 265 acres were concluded.

Trail management policies were formulated in draft form through the efforts of a DEM-Appalachian Mountain Club task force. Two roving information-education specialists called "Ridgerunners" completed a second successful summer of trail patrol and plans to continue the program during the summer of Fiscal Year 1983 were finalized.

INTERPRETIVE SERVICES

The Interpretive Services Program continued to grow in Fiscal Year 1982. Programs were offered in 17 parks the summer of 1981. New parks added to the program included Douglas, Dighton Rock, Massasoit, Shawme Crowell and Scusset Beach.

Summer 1981 was successful on Boston Harbor Islands with island managers on six islands, an information specialist on Georges Island and three water taxis providing transportation. Island managers developed popular living history programs at several islands. Living history techniques were used in Lowell as well, where DEM interpreters were integrated into the National Park Service Mill & Canal tour in period costume and characterization.

In preparation for summer 1982, training for Massachusetts park interpreters was held June 8 - 10, 1982 at Camp Jewell in Connecticut, in conjunction with the National Park Service and the State of Connecticut.

An interpretive center and self-guided trail were completed at Otter River State Forest and dedicated at the 25th anniversary of the North American Family Campers Association. This was made possible only by the tremendous cooperation, enthusiasm and assistance of this very dedicated group. Other brochures completed included an interpretive management trail guide at Douglas State Park, guides to Harold Parker, Bradley Palmer and Horseneck Beach State Parks, and an informational booklet on the Gypsy Moth. Slide-tape shows on Moore State Park and Myles Standish State Forest were completed, with work begun on a Division of Forests and Parks slide program.

A special thank you is due to all of the personnel who have helped with interpretive programs. A tremendous amount of work has been accomplished by in-house personnel developing slide shows, displays, programs, maps and generally assisting in this program.

Restoration work began on the summit house at Skinner State Park, and construction of the visitor center for Holyoke Range State Park is nearing completion. Development of these facilities and programs stimulated the organization of the Friends of the Holyoke Range, a non-profit group dedicated to the wise use of the Range. They will be assisting with interpretive, recreational, informational and maintenance projects at the park.

Volunteers continue to be actively involved in other interpretive programs across the state. The Friends of the Dighton Rock Museum prepared a new exhibit on the origin of the Dighton Rock inscriptions, which was installed at the park. Volunteers were recruited to assist with the daily summer tours at Walden Pond. Year-round events, including regularly scheduled tours of the Mansion were provided by the Friends of Borderland State Park. Twenty-five volunteers donated three weekends each to serve as information assistants on the Boston Harbor Islands and their presence was valuable in allowing the island managers more flexibility in developing and presenting in-depth interpretive programming.

Legislation was passed to allow the award of a ten-year lease to a farmer at Great Brook Farm State Park. Plans are proceeding to solicit proposals from farmers to operate an interpretive farm at the site.

ATTENDANCE AT FORMAL INTERPRETIVE PROGRAMS

FY 1982 (SUMMER 1981)

<u>PARK</u>	<u>SEASON</u>	<u># CAMPSITES</u>	<u># PROGRAMS</u>	<u># PARTICIPANTS</u>	<u>AVERAGE # PARTICIPANTS PER PROGRAM</u>
GREYLOCK	6/27-9/9	35	128	634	4.9
PITTSFIELD	7/5-8/21	25	30	159	5.3
SAVOY	6/26-9/7	45	138	1,464	10.6
D.A.R.	6/13-7/6	50	108	1,326	12.3
SKINNER	7/1-5/15	--	138	2,695	19.5
OTTER RIVER	6/28-9/7	247	90	1,989	22.1
DOUGLAS	6/27-9/7	--	25	413	16.5
WALDEN	7/1-6/30	--	198	1,802	9.1
STANDISH	7/1-9/3	475	66	1,087	16.5
NICKERSON	6/29-9/12	418	121	3,884	32.1
WOMPATUCK	6/29-9/1	400	73	584	8.0
SHAWME	6/21-9/7	270	35	375	10.7
SCUSSET	6/21-9/7	98	35	450	12.8
DIGHTON ROCK	7/21-8/22	--	informal contact museum visitors	1,775	--
MASSASOIT	7/4-8/28	126	18	217	12.0
PLUM ISLAND	7/1-10/15	<u>--</u>	<u>230</u>	<u>3,675</u>	<u>15.9</u>
<u>TOTALS - 16 PARKS</u>		2,189	1,433	22,529	15.7
<u>% INCREASE OVER FY 1981 -</u>		33%	42%	72%	21%

RINKS & POOLS

Rinks

Energy Conservation: Energy savings have been a high priority item with the Rinks and Pools Program for several years. 1982 saw the completion of the most important project to date: Heat Recovery. In refrigeration, heat is taken out to create cold and not the popular concept the cold is put in. In the past this heat was dispelled into the atmosphere, but now we have technology by which the heat can be captured and put back to work inside the building to pre-heat air and water. We applied for matching funds through the Land and Water Fund and received a \$250,000 grant. All of the monies have been received, except for \$12,500. This latter amount will be forthcoming as soon as plaques bearing the Land and Water Fund emblem are placed at the entrance of each of the 18 rinks.

Off Season Programs: At the New Bedford Rink the Rita Blair Figure Skating School was operating from April 4 to June 14, 1982 with skaters from the southeastern section of the state participating, including the Cape and the Islands. Other rinks with summer schools were North Adams, mainly figure skating; Newburyport and Haverhill where the main emphasis was hockey with some figure skating. All of these schools operate under a unique arrangement, whereby the school pays a flat fee of \$1,500.00 per week and they also must pay for all gas and electricity used during their period of occupation.

The Gardner Veterans rink plays host to the Greater Gardner Street Hockey Program. The game is also referred to as Dek-Hockey. The game is played on a special plastic floor. Participants wear tennis shoes and some protective equipment. Light hockey sticks are used and a ball is used instead of a puck.

Ice Rental Rates: Rates have been set at \$55.00 per 50-minute hour. We have recommended increases as part of our goal to reach the break-even point, as far as our operating budget is concerned. We expect that another increase will be authorized in Fiscal Year 1983.

Taped Music: After a lengthy discussion on copyright fees, it was decided to use 3M taped music rather than have to deal with three separate organizations representing the copyright owners. Each of the three groups has a different fee schedule and payment to them would represent a sizeable expenditure. With the 3M tapes, the fees are already paid by the manufacturer.

Pools

Locker Project: Surplus coin operated lockers have been removed from the rinks and sent to the warehouse at Westboro. Ed Laurence of the Auburn Rink was placed in charge of the project, and he produced enough useable units to take care of the demand for the summer of 1982. The program will be continued until the lockers at both the pools and rinks are up to par. Use of the lockers at six original pools will reduce the number of bathhouse attendants needed. Assistant Superintendent Laurence did an outstanding job with enthusiasm.

Personnel Cuts: Personnel reductions were made at the pools using a formula developed by a survey of pool usage. This has allowed us to effect savings without reducing the quality of the programs or effecting the safety of the public.

Pool Chemistry: The summer of 1981 was the first season where sodium hypochlorite was used at all 19 pools. Previously only the Attleboro Pool utilized this liquid form of chlorination, the others

used chlorine gas. This gas is extremely dangerous if it escapes into the atmosphere. It is heavier than air and will drift with the wind. It did just that at Holyoke the year before and sent several people to the hospital. Sodium hypochlorite is very safe and does a good job. The gas sent the ph of the water to the acid side of the scale and was balanced to 7.5 or so by the addition of Soda Ash, a caustic. After the change-over to liquid, we were left with a large number of bags of Soda Ash for which we had no outlet. A letter to the State Purchasing Agent obtained authority to exchange the Soda Ash for Diatomaceous Earth, which we use as a filtering element. This produced a sizeable savings.

Admissions: The fees for admission to the pools was increased from \$0.15 for children to \$0.25 and for adults from \$0.25 to \$0.50.

ANNUAL REPORT

FISCAL YEAR 1982

BUREAU OF FOREST DEVELOPMENT

Thomas F. Quink, Chief Forester

Introduction

A gray fiscal cloud overshadowed the Bureau at the outset of the fiscal year. The FY 82 budget, in the total amount of \$653,000, reflected a deficit of \$83,000. With all Forestry positions filled, it was anticipated that lay-offs would be inevitable.

But every cloud has a silver lining! And that lining came as news from the Secretary of Environmental Affairs that the Governor would support a supplementary forestry budget. The budget was passed in early calendar 1982 in the amount of \$62,854, an amount that saw the Bureau through wholly intact.

The national economic recession had considerable impact on the sales of forest products. The markets for softwoods and hardwoods, with exception of red oak, softened dramatically. The depressed housing markets, followed by a drop in demand for wooden household furniture, caused many Massachusetts sawmills to reduce production; some closed down completely. These happenings drove stumpage prices downward. Bid prices came in as low as one-half the projected worth and many marked stands remained unsold. Timber loggers turned to harvesting long-length fuelwood to meet monthly payments. In essence, income from the sale of forest products amounted to \$344,503, a drop of more than 50% when compared to FY 81 receipts.

In June 1982, prices for standing timber continued to soften. Even red oak, "king" of the commercial species, is expected to follow this ebbing trend. Economists predict an upturn for the forest products industry in 1984.

Personnel

During FY 82, new personnel and new positions were added to the Bureau. In November, Michelle T. Plourde became YACC Forester, replacing Lisa Brown, who left the Bureau to pursue graduate studies at Virginia Polytechnical Institute. Following the termination of the Young Adult Conservation Corps Program in March 1982, Michelle was hired with federal monies as Marketing and Utilization Forester working under the FPM&U Program. In this capacity, she assists the FPM&U Specialist and the Chief Forester in providing marketing and utilization assistance to the primary and secondary segments of the forest industry. She also assists in the development and conducting of communications information. During FY 82, she has written press releases on a variety of forestry-related topics, and has used her photography skills during many Department events.

In April, 1982, Jean Kimball left her position as Secretary-Clerk in Region 4 to take a position in Boston as Secretary to Mr. Richard Correia, Director of Office of Facilities Management, Division of Capitol Planning and Operations. David Fraser, a 1981 University of Massachusetts forestry graduate, replaced Jean, and is responsible for lending support to foresters in the handling of Chapter 61 certification/recertification materials. In addition, the secretary-clerk assists the Forest Resources Planner with the final draft of the Commonwealth's Forest Resource Plan.

In June of 1982, the Bureau received a letter of resignation from Edwin B. Cady, Jr., Resource Conservation and Development Forester, Franklin-Berkshire Counties. Ted accepted a forestry position with Peck Lumber Company in Westfield, Massachusetts. Ted was granted a three month leave-of-absence from the state, and is currently being trained by Peck Lumber Company's Chief Forester Howard Mason, who will be retiring this Fall.

Because ACP Fuelwood will not be funded during federal FY 83, there was much concern for the 5 foresters currently employed under the firewood program. However, the 83 budget, which was passed in June 1982, provided funding for 3 additional management teams. With the RC&D position vacant, and the need for 3 more foresters, at least 4 of the 5 ACP Foresters will fill these vacancies during FY 83.

Legislation

After three years of continual work to amend the Forest Taxation Law (M.G.L. Chapter 61), Chapter 768 of the Acts of 1981 was signed into law on January 2, 1982 and became effective on April 2, 1982. This milestone was achieved through the cooperative efforts of the Division of Forests and Parks, the Massachusetts Association of Assessing Officers, the Massachusetts Tree Farm Committee, the Massachusetts Wood Producers Association, the Massachusetts Association of Professional Foresters and the legislative support of Senator John Olver and Representative Richard Moore. The two legislators were awarded a plaque for their efforts.

To expedite effective handling of the new law, Forester Daniel Perrin was appointed Statewide Chapter 61 Coordinator of five Regional Coordinators and Regional Clerks. Regulations were drafted and promulgated, administrative policies adopted and training sessions for foresters (public and private) developed.

It is expected that the new law will encourage woodland management and discourage its use as a tax dodge by unscrupulous investors.

PRIVATE LAND MANAGEMENT

Service Forestry

Eighty-seven per cent of the commercial forest land in the state of Massachusetts is in private ownership. This figure reveals the significance of the private, non-industrial woodland as a prominent and local supply of saw-timber and firewood. The Bureau of Forest Development employs 13 Service Foresters who provide marketing and technical assistance to the Commonwealth's private landowners and primary forest industries. During FY 82, the Service Foresters assisted 571 landowners with the establishment of forest management plans encompassing 19,025 acres. The foresters answered 2,293 landowner requests for management and marketing assistance and technical advice. Furthermore, they were directly involved in timber sales which supplied loggers, sawmills, and other primary processors with 18,705 MBF of sawtimber and 17,160 cord of firewood.

Wildlife

Wildlife and it's habitat may be significantly affected during and following a logging operation. Wildlife is an important multiple-use that shouldn't be overlooked when making management decisions. During FY 82, service foresters attended a variety of seminars and workshops which introduced management alternatives designed to enhance wildlife habitat.

In September 1981, Service Forester Richard Kulis attended a Tri-State Wildlife Conference at Southern Connecticut designed to train Service Foresters in management planning techniques for private woodland owners. Also in attendance were state lands Management Foresters Bruce Anderson and Conrad Ohman. The conference was hosted by state wildlife agencies from Massachusetts, Connecticut, Vermont, Maine and New York, as well as the Fish and Wildlife Division of the U.S. Forest Service.

Service Forester Richard Kulis, Management Forester William Rivers and his assistant Dave Richard attended a Ruffed Grouse and Woodcock Management Seminar on improving forest lands for wildlife held at Bellows Falls, Vermont. The program, which was hosted by the Ruffed Grouse Society and the Vermont Fish and Game Department, included seminars and field trips demonstrating game and habitat management alternatives. Information on ruffed grouse and woodcock management was obtained and distributed to Division forestry personnel.

Division Management Foresters have been cooperating with the Division of Fisheries and Wildlife and have assisted them in forest management on their properties. In turn, the foresters have utilized the wildlife expertise of the Division of Fish and Wildlife in forest management.

Region five Management Foresters have been cooperating with the Audubon Society in monitoring locations of Red Shouldered Hawks and informing them of sightings and nesting locations. Precautions were taken not to disturb the nesting sights during forest management activities.

Massachusetts will be hosting a wildlife seminar in the Autumn of 1982, which will be co-hosted by the Department of Environmental Management and the Massachusetts Tree Farm Committee.

Forest Tax Law - Chapter 61/Farmland Assessment Act

This year, there have been major changes in the Chapter 61 program with the passage of the new law. On January 2, 1982, Governor Edward King signed into law Senate Bill #2334 - "An Act Providing for the Classification and Taxation of Forest Land and Forest Products".

Major changes are highlighted as follows:

1. If a parcel of land has a subdivision plan recorded on it or if a subdivision plan has been formally proposed, it cannot be certified under Chapter 61.
2. The owner shall pay the fee to have the lien recorded or removed.
3. Certificates will be issued for ten year periods and management plans must contain detailed tasks to be completed in specified periods over ten years.
4. The owner shall pay an application fee to the Commonwealth based on the cost of inspecting the land and processing the paperwork. This fee shall be set and may be revised from time to time by the Department of Administration and Finance.
5. At the time of application the state forester or his agent must physically inspect the subject land to determine if any cutting took place within two years prior to the date of proposed classification. If on the evidence available it is determined such a cut took place, a products tax of 8% of the determined stumpage price will be assessed and must be paid to the town as a precondition of classification.
6. The owner must pay an 8% products tax on all forest products cut. There is no longer any exemption for personal use.
7. Copies of all cutting plans proposed on classified land must be provided to the assessors and will be provided by D.E.M. Regional Offices.
8. The owner shall pay annually a real estate tax based on applying the locally established commercial rate to 5% of the fair cash valuation of the land under M.G.L. Chapter 59.

9. Should classified land be voluntarily withdrawn from forest use, there will now be a payback requirement of the full differential between the Chapter 59 tax rate and the sum of taxes paid under Chapter 61 including severance tax. There is no longer a maximum per acre dollar limit but the payback carries only to the beginning of the last classification period or five years for recertified land, whichever period is the longer. Should land be involuntarily withdrawn, no credit is given for severance tax paid. Interest will be assessed to all payback taxes.

10. Should the landowner convert forest land to other use, the City/Town must be given opportunity as under Chapter 61A to purchase the land at fair market value.

11. Land presently classified under Chapter 61 will remain classified for a period of one year beyond the present classification period. Within the one year grace period, the landowner may withdraw all or a portion of the land from classification without any payback penalty. Should he choose to remain classified beyond the grace period, he must by July 1 of the grace period year, make application for recertification under the provisions of the new law.

12. There is no longer a \$400 maximum valuation as precondition for recertification. The 5% of fair market value taxation level is established as an economic ceiling to insure that some land could no longer economically be left as managed forest land.

13. Appeals will now be heard by a tripartite board, one member nominated by the assessors, the second by the State Forester, and the third to be chosen by the first two.

Daniel Perrin, Bristol County Service Forester, has been assigned as the Chapter 61 Statewide Coordinator, in order to expedite effective management of the Chapter 61 program. In this capacity, he

directly coordinates efforts of Regional Chapter 61 Coordinators who in turn work with Service Foresters through the Regional Supervisors; acts as a liaison with the Massachusetts Association of Assessing Officers (M.A.A.O.); develops Chapter 61 education informational programs for D.E.M. personnel, consulting foresters and assessors. The Regional Coordinator is also assigned the task of drafting Chapter 61 policies and procedures. All policies and procedural matters are channeled through the Chief Forester to the Director for approval.

Regional Coordinators are Gerald Veale, Region One; Harold Jackson, Region Two; Richard Johnson, Region Three; Richard Kulis, Region Four; Bernice O'Brien, Region Five.

It goes without saying that the change in the law has resulted in confusion, but with the cooperation of all parties, there has been great success in administering this program this year.

Private Consulting Foresters

There are approximately 75 private consulting foresters in the Commonwealth providing a wide range of forestry services. A list of consulting foresters in the state of Massachusetts has been compiled by the Division and is periodically updated. Due to the heavy workload of the state's Service Foresters, 900 landowner requests were referred to private consulting foresters during FY 82. This referral system assures the landowner of receiving timely, professional advice and management assistance.

ACP Fuelwood Program/Wood Energy

Fiscal year 1982 proved to be a most difficult one for the ACP Fuelwood Program in Massachusetts. From early FY 82, it became obvious that Federal budget consideration would threaten forestry cost-share programs such as FIP, ACP and ACP Fuelwood, the actual extent of which, however, was not discovered until fall of 1982. Many hours

were spent by Chief Forester Quink and other Department personnel in exploring any and all possibilities of revitalizing the funding status of this young, potentially effective and essentially untested program. Although sufficient funding was secured to extend both cost-share and technical assistance through FY 82, there is every indication from the Agricultural Stabilization and Conservation Service (ASCS) and the USDA Forest Service that the program will officially lose "special project" status beyond September 30, 1982. At that time, activity under the program for the dual-purpose goal of silvicultural forest stand treatment and wood fuel availability will be limited by the funding demands of agricultural practices offered by ASCS. Priority for funding will be determined on a county-by-county basis, as before.

Despite the dim, if non-existent, prospects for continued special practice funding beyond September 30, 1982, the ACP Fuelwood Program showed an increase in most categories statewide for FY 82. A two-fold increase in improved treatment acreage (2,657) and a slightly less than three-fold increase in cords of fuelwood removed (18,111) were realized over the previous fiscal year. These magnitudes tend to reflect the cumulative totals for those original cases reaching two-year completion deadlines during FY 82. The number of road miles subsidized for the purposes of fuelwood access (8.20) was somewhat lower, however, for FY 82 as compared to FY 81. The totals to date are impressive, close to 26,500 cords removed over 26½ miles of access roads from approximately 4,000 acres of Massachusetts forestland since the inception of the program in May of 1979. Requests are currently being handled for an additional 50,000 cords of fuelwood removal, 8,000 acres of forest improvement and 50 miles of access road, statewide.

In direct contrast to the unstable nature of the funding circumstances, the ACP Fuelwood program reached it's highest level of

efficiency for all involved during FY 82. This can be attributed to a number of factors to include the following changes:

- (1) the securing of fuelwood operators by consulting foresters prior to program application;
- (2) standardization of the forest management plan format;
- (3) familiarity with procedures; and
- (4) repeat applicants.

In summary, although FY 82 has exposed, for the ACP Fuelwood Program, the very real prospects of funding uncertainty, it also has marked an important developmental period for a program of forest management which has proven itself useful on private woodlands.

Tree Farms

As of January 1, 1982, Massachusetts has 923 Tree Farms comprising 195,026 acres. Ten years ago the state had 365 Tree Farms occupying 99,854 acres. James Soper, Eastern Franklin County Service Forester was awarded a Bronze Hard Hat at the annual Tree Farm meeting in Sturbridge for certifying 25 new Tree Farms. At that meeting, Harold Jackson, Essex County Service Forester was elected Secretary of the Massachusetts Tree Farm Committee.

The Tree Farm Program, in cooperation with the Department of Environmental Management, coordinated the following events to promote Massachusetts forestry: The Eastern State Exposition Tree Farm Booth, The Outstanding Tree Farmer Award Banquet, The "Woodland Dollars and Sense" conferences held in Boston and Springfield, and The Topsfield Fair.

Mr. Fred Winthrop was chosen as the 1982 "Tree Farmer of the Year". Mr. Winthrop, Commissioner of Agriculture for the Commonwealth, will be awarded the honor at the 1982 Eastern States Exposition to be held in September. Mr. Winthrop coordinates his

forest management activities through Service Forester Harold Jackson.

At the New England Tree Farm Meeting held at Lowell, Massachusetts in February of 1982, Massachusetts was awarded the distinction of having the best Tree Farm program in New England. The state was also recognized as being one of seven states to inspect 100% of the Tree Farms which were up for inspection.

Landowner Association

The Massachusetts Land League is concerned with the wise use, or stewardship, of all types of open land in Massachusetts. The Land League was founded in 1970, to promote positive land use throughout the state, and is supported by volunteers. Since it's inception, the Land League has broadened from a "Kitchen Table" organization to a reputable association with an experienced staff of professionals directly involved in both public and private resource use in the Commonwealth.

The major objective of membership is to encourage the many people already concerned with the well-being of open land to contact those owners who are presently doing little or nothing with their resource. The Massachusetts Land League is unique in that it is the only such group in the Commonwealth that is concerned with the stewardship of the open lands that will be retained in private ownership. The Land League publishes a monthly newsletter, holds monthly meetings, sponsors seminars and field trips, provides data on recent and pending legislation, and informs of sources of technical assistance. The Land League is encouraging woodland owners and other concerned individuals to join them in a common effort to further the interests of successful and continuing private ownership of this resource.

Christmas Trees

The Christmas Tree growers of Massachusetts are a hard-working, dedicated group involved in a year-round commitment to a seasonal product. The Christmas tree growing industry is assisted by the Bureau of Forest Development through marketing publicity, technical information and advice. During FY 82, Service Forester Richard Johnson served on the Massachusetts Christmas Tree Association Publicity Committee which advertised Christmas Tree related events throughout the state.

Every year, a Christmas Tree Seller's list is compiled by the Department and available to the public. The list includes the names and addresses of all of the Christmas Tree merchants in the Commonwealth by county region. Some Christmas tree growers/sellers allow the public to chose their Christmas Tree on the stump in early Winter, then cut it down on a designated day prior to Christmas. This method, known as "choose and cut", has gained popularity as a traditional recreational activity for it's participants.

This past year, Christmas Trees were provided to the constitutional offices at the State House, as well as the Senate Balcony, Doric Hall, the Senate Chamber, and the State House lawn. Numerous problems resulted due to the improper care of trees after their delivery. Consequently, it is recommended in the future to provide trees only for the Senate Balcony, Doric Hall, and the Senate Chamber. Due to the planting of the 30-foot Colorado Blue Spruce on the State House lawn this past Arbor Day, there will no longer be a need to harvest and transport a large tree every year.

A demonstration plantation has been established at the Wachusett Mountain State Reservation. A transplant bed has been prepared and the seedlings will be ready for transplant next Spring. At present, the Forests and Parks Supervisor is caring for the seedlings.

Maple Products

Massachusetts produced 30,000 gallons of maple syrup during the Spring of 1982. Syrup production and related maple products such as maple sugar candy and maple butter contributed to a one million dollar industry. The 1981 syrup production was approximately 75% of the record-breaking 1981 crop.

At the Annual Massachusetts Maple Producer's Meeting held at Shelburne, concern was expressed over insect infestations by gypsy moths and saddled prominent. In addition, acid rain seems to be a potential problem to the sugarbush owners throughout the state.

D.E.M. STATE LANDS MANAGEMENT

Division of Forests and Parks Management

The Bureau's five Management teams are responsible for the planning, execution, and supervision of forest management on the 250,000 acres of forests, parks and reservations which make up the Division of Forests and Parks. The Division supports a "multiple-use" management concept which integrates five entities - timber, wildlife, watershed, forage and recreation.

Timber Stand Improvement (TSI)

Timber Stand Improvement involves intermediate cutting operations designed to improve the quality and the growth-rate of selected crop trees. A key objective of the Division of Forests and Parks is to strive to improve the productivity and condition of the Commonwealth's timber resources. This goal was attained through various timber and cordwood sales conducted on Division lands. Timber stand improvement work in FY 1982 was achieved through cordwood programs such as Cut-A-Cord, Home Fuelwood, and Commercial Fuelwood, and provided

Massachusetts residents with 6,992 cords of wood harvested from approximately 875 acres.

Harvesting

Depressed timber markets greatly influenced the income generated from sawtimber sales during FY 82. According to the Wall Street Journal, the market for most wood products, except fuelwood, was the worst since the Great Depression. However, many economic analysts predict a long-term improvement in market conditions as wood is expected to become more competitive as a building material, compared to steel, brick and concrete.

The Bureau's Management Foresters marked and sold 7,850,088 board feet of hardwood and softwood stumpage, generating \$344,503.23 in revenue for the state's treasury.

Wood Energy Programs

During FY 82, the Cut-A-Cord Program provided 2,964 cords of wood from approximately 325 acres to Massachusetts residents. Cut-A-Cord was initiated in response to the oil embargo of 1973. This fiscal year, Cut-A-Cord generated \$11,856.00 in revenue for the state.

The Cut-A-Cord Program was conducted at the following locations during FY 82:

<u>Region I:</u>	Freetown State Forest Nickerson State Park Wompatuck State Park
<u>Region II:</u>	Harold Parker State Forest Lowell-Dracut-Tyngsboro State Forest Georgetown-Rowley State Forest Willard Brook State Forest
<u>Region III:</u>	Douglas State Forest Wachusett Mountain State Reservation
<u>Region IV:</u>	Brimfield State Forest Conway State Forest Wendell State Forest

Region V: Beartown State Forest
 October Mountain State Forest
 Savoy Mountain State Forest
 Tolland State Forest

The Home Fuelwood Program was developed by the Division to assist homeowners who are seriously committed to using wood as their primary source of fuel. In this program, lots ranging from 6 to 15 cords in size are sold on a competitive bid basis. Minimum acceptable bid is \$10 per cord. During FY 82, 752 cords were harvested from approximately 118 acres under the Home Fuelwood Program generating \$12,979.27 in income.

Timber Stand Improvement work was carried out in more remote areas through the administration of the Commercial Fuelwood Program. Firewood cutters who own specialized equipment purchase and extract the marked cordwood. During FY 82, Commercial Fuelwood sales generated \$38,481.38 in income through the sale of 2,756 cords of wood from approximately 400 acres.

Boundary Maintenance

The State's Division of Forests and Parks encompasses over 1,500 miles of boundaries. All boundaries should be inspected and re-marked at least every ten years. During FY 82, only 40 miles of boundaries were re-established, due to Management Foresters spending considerable time and effort on income generating timber sales and fuelwood programs.

State Land Management Planning

The Department of Environmental Management is responsible for ensuring that the Commonwealth's forests provide social, economical and environmental benefits to its citizens. The development of plans integrating these uses at state and sublevels is necessary to achieve these mandates. The position of Statewide Forest Resource Planner is currently dependent upon continued federal funds. A full-time, state-

funded position of Forest Resources Planner will be requested in the 1984 budget.

The Planner is responsible for writing usable management plans. Her duty is to "streamline the system" and intensify the development and implementation of multiple-use management plans on D.E.M. Lands. The new Environmental Impact Report will be used as a policy-book and reference to it will be made in every plan.

Other Accomplishments and Activities

The Northern Berkshire Management Team was involved in wildlife management projects during FY 82, including the seeding of three log landings, and the supervision of a YACC crew in releasing and pruning an abandoned apple orchard. Special consideration was given to the management of Pileated Woodpeckers during one timber sale. Forestry personnel had informal "get-togethers" with officials of the Massachusetts Audubon Society and Simon's Rock College regarding the effects of forest management on Red Shouldered Hawks and Pileated Woodpeckers.

A considerable amount of time was spent on Appalachian Trail related projects, including the location of boundary lines and the relocation of the trail from Cheshire to the Saddleball area of Mt. Greylock State Reservation.

Eight acres of diseased red pine were salvaged in a commercial harvesting operation conducted at Marth's Vineyard State Forest. The pine stand was infected with Diplodea pinea, a twig blight occurring most often in young plantations.

The Connecticut Valley Management Team Coordinator reported that the gypsy moth severely defoliated a great portion of land in Eastern Franklin County. Although the pest has succumbed to a viral disease that follows high population levels, it has left in its wake several million board feet of dead and dying timber. The team is presently

exploring marketing possibilities for the estimated 1 million board feet of this timber that may be salvagable.

Department of Corrections continued to cooperate with the Division on various projects including the harvesting of fuelwood from the Warwick State Forest. An agreement has been made whereby Corrections personnel will operate and maintain the Division's sawmill at their Warwick facility.

Forest Products Marketing and Utilization

The entire Commonwealth - through increased business, higher employment, a more stable tax base and a more sound environment - shares in the benefits that the FPM&U Program has to offer. The Massachusetts FPM&U Program plays an integral role in the development of industry within the Commonwealth due to it's involvement in the various stages of wood processing from the stump to the finished product. Direct beneficiaries of this program are woodland owners, loggers, wood processors and their employers. All persons who supplement their energy needs with cordwood, wood chips, or pellets and alternative fuel industries also benefit.

The Massachusetts Forest Products Marketing and Utilization (FPM&U) Program assists the forest landowners and wood processors through technical services and advice on all phases of the harvesting, processing and marketing of forest products. Increased utilization and maximized efficiency are two key objectives of the program.

During April of 1982, a new position was added to the Bureau's FPM&U Program. Michelle T. Plourde, former YACC Forester for the Bureau, was named as Forest Products Marketing and Utilization Forester.

D.E.M. Lands

The administration of forest product sales from D.E.M. Lands is one of the responsibilities of the FPM&U Specialist. This includes

handling all notifications of intent to cut, contracts and harvesting licenses. Timber sales during FY 82 totalled 7,580,000 board feet of sawtimber and 6,665 cords of fuelwood. Refer to "Income" Section for details on related revenues.

Private Woodlands

The Forest Products Marketing and Utilization Program provides marketing information to private woodland owners, as well as the wood products industry. During FY 82, 12 woodland owners were directly assisted through the FPM&U Program in marketing approximately 120 MBF of timber and 10 mcf of fuelwood.

The FPM&U Specialist provides stumpage price information to mills, loggers, and woodland owners through the quarterly "Massachusetts Roundwood Stumpage Price List". Price ranges are determined for county groups, and are based on demand, market availability, timber quality, and stand accessibility which cause them to vary within the same area.

In the newly amended Chapter 61 Law, which was passed on January 2, 1982, there is a clause which requires New Chapter 61 landowners to report stumpage value for any wood product removed from their property for a period of two years prior to entering said property under the law. In order to assist these landowners in determining this value, a continuous compilation of the aforementioned quarterly stumpage price report has been developed encompassing all reports compiled since May of 1978 to present.

Industry Assistance/Program

Assistance was given to several private industries and quasi-public organizations in locating new and potential markets for their wood products. During FY 82, 15 primary wood industries and 10 secondary wood industries received such assistance. These efforts resulted

in the marketing of nearly 7 million board feet of native lumber. As a result, 4.7 million cubic feet of wood were saved, allowing the Bureau to surpass the target of 2.5 million cubic feet negotiated with the U.S.D.A. Forest Service's R.F.A. - Resource Utilization Program.

The FPM&U Specialist administers the Improved Wood Utilization Program. During FY 82, this program assisted 2 secondary industries and 2 primary industries, through the use of private wood industry consultants. Consequently, 3 million cubic feet of wood per year are recovered, and manufacturing problems within these industries have been corrected.

A brochure entitled, "A Guide for Commercial Harvesters of Forest Products in Massachusetts" was written by the FPM&U Forester. The Brochure was designed to inform, in non-technical language, the commercial cutters of timber, fuelwood and other forest products, of the laws and regulation governing forestry and timber harvesting in Massachusetts. It is aimed at assisting the commercial timber harvesters in identifying potential legal problems, so that they may conform their practices to the laws and regulations. A copy of this brochure was given out with all harvesting license applications.

Export Study

In an effort to assist the furniture and related industries of Massachusetts in expanding their potential for increased sales, the Improved Wood Utilization Program in cooperation with the Massachusetts Department of Commerce, is presently funding the development of an International Marketing Program for Massachusetts producers of furniture and related secondary wood products. The objective of the program is to bring together Massachusetts producers with reputable foreign buyers and provide the mechanism which will facilitate

the export procedure to areas of prime potential. The project will include: (1) making the best use of a \$100,000 study on furniture exporting recently completed by the U.S. Department of Commerce. (2) pulling together the resources of the U.S. Department of Commerce, Port Authorities, Massachusetts Department of Commerce, Foreign Agriculture Service Embassy's, etc. in an effort to promote the products of cooperating Massachusetts companies. (3) identifying and visiting with prospective reputable buyers. (4) promoting coordinators products, and providing the introduction between prospective buyers and Massachusetts sellers. Through the use of catalogues, knowledge of the capabilities of Massachusetts manufacturers and the wood industry, the consultants will be able to attain these goals.

Technology Transfer

Technology transfer workshops were attended by the Forest Products Marketing and Utilization Specialist during FY 82, in order to better aid industries in improving their operating efficiency and profitability. Workshops included a five-day "Rough Mill Improvement Program" seminar, a two-day "Christmas Tree Growers" workshop, and a "Logged Area Analysis" (L.A.A.) workshop.

The FPM&U Specialist conducted a "SOLVE" study (time/cost analysis) at Peck Lumber Company in Westfield, Massachusetts in which industrial foresters from other companies were invited to attend, so that they could bring this information back to their respective mills and conduct similar studies. The Specialist also conducted a L.A.A. workshop for State Lands Management Foresters.

Workshops are currently being planned and developed for FY 83. These are aimed at educating people in the forest products industry in Massachusetts and will address such topics as: small business management, basic accounting, and sawmill maintenance.

R.P.A. Inputs

During FY 82, the Forest Products Marketing and Utilization Specialist participated in the development of the Forest Resource Policy Industrial Sub-Committee Report. He attended several meetings and provided input as to the effects of current laws on the industry and determined whether or not new laws and policies should be developed. Information was provided as to how the Commonwealth could better assist the Forest Products industries through education and technology transfer.

Cutting Practices

The FPM&U Specialist administers the Massachusetts Forest Cutting Practices Law (M.G.L. Chapter 32, Sections 40-46). A summary of cutting practices operations during FY 82 follows:

Notices of Intent (number)	290
Cutting Plans (number)	452
Final Reports (number)	5
Acreage (acres)	15,759
Stumpage (MBF)	35,411.3
Stumpage (cords)	27,949
Harvesting Licenses (number)	416
In-State	377
Out-Of-State	39

RESOURCE, CONSERVATION AND DEVELOPMENT (RC&D)

Programs and Accomplishments

RC&D Forestry was active this past year. A \$13,000 grant was received from the American Forest Institute to facilitate "Project Learning Tree", a conservation education program to aid public school teachers. Financial assistance was given to publish various books and pamphlets, including "Burning Wood Efficiently", and the "Whole Tree Chip Harvesters Manual".

A number of workshops were held for foresters and the forest products industry. The RC&D Forester conducted "Logged Area Analysis" workshops to teach a method of estimating the volume of wood on the

ground following a logging operation. These workshops were attended by both state and private foresters. Workshops were also offered in wildlife management and federal income tax provisions. Forestry information was distributed to the public through radio shows, newspaper articles, and booths at fairs.

Home Fuelwood Survey

The Resource Conservation and Development Forester conducted a fuelwood survey examining the residential use of fuel in Massachusetts. Among the results of the survey - 25% of the households in Massachusetts burned some fuelwood during the 1981-82 heating season. The total volume of wood burned during that period was 1,201,113 cords, an average of 0.6 cords for every household in the Commonwealth, or 2.4 cords for each household that burned wood. The survey also revealed that approximately 57% of the total volume of wood burned was self-cut by household members. Nearly 60% of the woodburning households used woodstoves, and about 40% used fireplaces.

FOREST RESOURCES PLANNING

The goal of the program is to prepare and implement a comprehensive Forest Resource Plan for the Commonwealth. When completed in 1983, the State Forest Resources Plan will provide policy and program direction for the Division of Forests and Parks, as well as provide the Commonwealth's portion for the 1985 Federal RPA effort. This program is directed by Dr. Muriel E. More with the assistance of Mary Anne Naples, Assistant Planner.

Advisory Committee

During fiscal 1982, considerable advances were made in forest planning. The Massachusetts Forest Resources Advisory Committee,

formed to help with the development and implementation of the Plan, has continued to provide substantial assistance. In FY 1982, Committee members voluntarily gave 1,237 hours of service and logged approximately 15,000 miles on behalf of the Planning effort.

Technical Groups

A primary focus this year has been the preparation of issue assessments dealing with planning and management of state, municipal and privately owned forest land, forest industries, wood energy and forest protection (insect/pest). Technical working groups composed of Advisory Committee Members and other technical experts were formed to address each area. Each group completed a draft assessment that underwent agency and public review and subsequent revisions. Currently three assessments are in final form and the balance will be completed by the end of Summer, 1982. These assessments will be instrumental in the development of a five year program plan for the State's forest resources. A discussion draft of the Massachusetts Forest Resources Plan will be available in Fall, 1982.

In addition to the issue assessments, work continued on the preparation of technical assessments of the major forest resources; timber, recreation, water and wildlife. Draft assessments of water and wildlife were completed and technically reviewed. The timber and recreation assessments will be ready for technical review in late Summer, 1982. Following revisions these resource assessments will be available in final form by late Fall, 1982. These assessments will be especially useful in helping people understand how the issues are related to the major forest resources.

State Land Management Planning

In other forest planning activities, Dr. More's proposal to initiate a pilot Prime Timberlands Mapping Project in Massachusetts was

accepted and funded by the U.S. Forest Service. The purpose of this project is to inventory and map the prime timberlands in the state. The project is being carried out by a faculty team, under the leadership of Professor William P. MacConnell, in the Department of Forestry and Wildlife Management at the University of Massachusetts. Dr. More serves as the Project Coordinator for the Division of Forests and Parks.

Additionally, Dr. More was assigned to the team coordinating the U.S. Forest Service re-survey of the Commonwealth's forest resource in 1983. Much preliminary work has been accomplished, especially in conducting technical review sessions of the major components (timber, recreation, wildlife, soils, wood energy, and private landowner survey) that make up the multiple resource inventory.

Finally, Dr. More and Thomas F. Quink, Chief Forester, attended the 20 state Northeastern Area State Forest Resource Planners Conference held in June in Rehoboth Beach, Delaware. Both made special presentations at the Conference. In addition, Dr. More continues to serve on the Executive Committee of the Organization of Northeastern Area State Forest Resource Planners.

URBAN AND COMMUNITY FORESTRY

Urban Forestry progressed well in the Commonwealth during FY 82. The newsletter which is produced through a contract with the University of Massachusetts was issued to every town in the state.

Gypsy Moth Assistance

The Urban and Community Forestry Coordinator was involved with communications efforts concerning the gypsy moth problem during FY 82. In coordination with the Executive Office of Environmental Affairs (E.O.E.A.), a three point information program was initiated. This

consisted of a press conference, a toll free telephone information system with periodic updates, and weekly press releases. This program has been well received.

The Urban and Community Forestry Coordinator helped prepare the report from the Municipal Lands Subcommittee of the Forest Resource Advisory Committee. This group, through research and spirited discussion, has made a definite contribution to the Commonwealth's forest resource plan.

Although not directly related to urban forestry, the restoration of Salisbury Beach was allocated a portion of the Coordinator's time. Funded by the Disaster Recovery Team, a program was completed to help preserve some of the sand dunes at Salisbury Beach.

The Coordinator received training in the conduction of public participation programs and instructor training, and attended various other workshops and seminars.

Arbor Day

The Urban Forestry Program was responsible for the coordination of the Department's Arbor Day celebration. Western Maine Forest Nurseries supplied 1,000 white spruce seedlings with which the Department used for distribution and planting. Weston Nursery in Hopkinton supplied Bradford pears and red oaks. In Boston, Arbor Day was observed with a "Boston Tree Party" celebration. A thirty-foot Colorado Blue Spruce was planted on the State House lawn. This tree will serve as the state's Christmas Tree. The Georgia-Pacific Company, through the influence of the Amercian Forest Institute, donated 500 seedlings, which were distributed at the "Boston Tree Party" Celebration. A coordinated effort between Urban Forestry and the State House resulted in the acceptance of the tree by Governor King in an official ceremony on April 30, 1982.

Chapter 61 Assistance

During FY 82, the Urban and Community Forester attended various meetings pertaining to the administration and regulations of the new Chapter 61 law. The U&C Forester assisted Region II personnel in the handling of requests relative to Chapter 61.

Forestry/Environmental Education

During FY 82, the Urban and Community Forester acted as state liaison with "Project Learning Tree", a conservation education program targeted for public school teachers. This program is designed to enable teachers to give students a "conservation" ethic, as opposed to the current "preservation" ethic.

The U&C Forester attended the Massachusetts Conference of Arborists and Public Utilities, held at Chicopee in February. This year's conference focused on ways to harmonize the uses of public utilities and shade trees in an aesthetic and functional manner. The U&C Forester addressed the topic of urban forestry in Massachusetts.

State Champion White Oak

During FY 82, a large white oak on the property of the Salem Cross Inn in New Braintree, was discovered to be the State Champion White Oak. The tree measures 257 inches in diameter, has an average branch spread of 99 feet and is 97 feet tall.

Last year, the champion was heavily defoliated by gypsy moth caterpillars, and it was evident by the size and number of the overwintering egg masses found on the trunk and branches of the tree, that it would be subject to heavy defoliation during FY 82 unless protective measures were taken. Mr. Richard Salem, owner of the Salem Cross Inn, expressed this concern to Senator Robert Wetmore, who in turn notified Director Bliss of the potential problem. Chief Forester Quink and Dr. Francis Holmes of the University of Massachusetts' Shade

Tree Laboratories, were called upon to visually inspect the tree, and determined that it was, indeed, a champion. Division personnel reviewed the situation, and decided to render both technical and financial assistance in an effort to protect the majestic oak.

Systemics, Inc. of Westwood was selected to treat the oak, and in June, used Systemic Micro-Injection employing the Mauget product Inject-A-Cide B to control the gypsy moth and other leaf feeding pests. The tree was fertilized by Micro-Injection also. The tree reacted positively to both treatments.

A list of Champion Trees in the State of Massachusetts is maintained and updated by Dr. Holmes. It is necessary to provide continued protection and care of these stately monarchs if they are to survive and flourish for years to come.

INCOME

The forestry account derived income from several sources - namely grants, timber and fuelwood sales, the sale of harvesting licenses and leases/permits. These monies totalled \$605,280.79 for FY 82 as compared to \$1,081,564.17 in FY 81. The following is an analysis of the Bureau's receipts.

Program

<u>State Land Income</u>	<u>Amount</u>
Harvesting Licenses	\$ 2,275.00
Rents/Leases	9,092.56
Forest Products	<u>344,503.23</u>
Sub-Total	\$355,870.79

Federal Income

RFA (Marketing & Utilization)	\$ 36,000.00
RFA (Service Forestry)	31,810.00
ACP Fuelwood	68,500.00
ACP Technical Assistance	21,900.00

FIP (Forestry Incentives Program)	\$	2,300.00
RC&D (Resource Conservation & Development)		14,200.00
FRP (Forest Resources Planning)		44,000.00
U&CF (Urban and Community Forestry)		<u>30,700.00</u>
Sub-total	\$	249,410.00
TOTAL	\$	605,280.79

ANNUAL REPORT
FISCAL YEAR 1982
BUREAU OF INSECT PEST CONTROL
CHARLES S. HOOD, CHIEF

Summary of Conditions

The summer of 1982 found the gypsy moth, Lymantria dispar, approaching more normal intensity and population levels than was experienced in the previous year when all records for extent and severity were broken. Rather than overwhelming numbers of first instar larvae which devoured leaves before they could fully expand, more normal populations allowed leaves to develop to full size. Feeding and subsequent defoliation was evident in many areas of the state, but due to lack of population pressure it was confined primarily to oaks. Few, if any, evergreens were attacked. All in all, a more normal gypsy moth situation was experienced, albeit the total of areas defoliated was second only to that recorded last year. Attack by the saddled prominent, Heterocampa guttivitta, was evident again this year in Berkshire County and in the western edge of Hampden County where the northern hardwoods, birch, beech and maple are the predominant species.

Associated with the saddled prominent, and found feeding in the same areas, was the green striped maple worm, Anisota rubicunda.

Also found in the same area of the state but confining its activity to stands of black cherry and causing extensive defoliation was another occasional forest pest, the cherry scallop shell moth, Calocalpe undulata.

At the other end of the state, in Plymouth and Barnstable Counties, the pine looper, Lambdina athasaria pellucidaria, continued

its attack on pitch pine. Myles Standish State Forest has been particularly hard hit and a considerable amount of mortality is evident.

The brown-tail moth, Nygmia phaeorrhoea, which exists in a very limited area in the United States remains a serious pest on the National Seashore Park in Provincetown and Truro. Its host plants in the seashore area are the beach plum and wild rose. The major objection to the pest is its ability to cause a rash on humans who contact it.

Gypsy Moth

The start of Fiscal Year 1982 witnessed the result of the most severe and extensive defoliation by the gypsy moth which had ever been recorded in the United States, including Massachusetts. So heavy were the populations in many areas of the state that there was not enough food available resulting in starvation and dessication of millions of larvae. In some areas this same stress situation triggered the virus or wilt disease which also decimated the population. The end result was that populations were so reduced that few, if any, adults and the resultant egg masses could be found. The areas of the state where this phenomenon appeared to be most evident were the entire Connecticut Valley region, Central and Southeastern Worcester County and most of Middlesex County south of the northern tier of towns.

Anticipating more than usual interest and concern from communities as to the potential gypsy moth problem to be expected in 1982, Bureau personnel contacted each of the affected cities and towns (Appendix #1) and offered assistance to assess the situation. This would be done by making a series of egg mass counts from which then can be determined the extent and intensity of the gypsy moth during the coming season. When the survey work was completed late in

the Fall, 246 communities had availed themselves of this assistance. Upon completion of the survey in each community, the survey team prepared a map on which was located each tenth acre block and the count of viable egg masses found. This was then given to the local superintendent of Insect Pest Control for consideration by the community.

During the egg mass survey work it became evident that many communities would be contemplating control programs. Anticipating that money might be available for reimbursement under the Federal Forest Pest Control Act, a preliminary survey was conducted to determine the number of communities and the acreage which might be considered for control action. At the same time, a "letter of intent" (Appendix #2) was sent to the Area Director, Northeastern Area State and Private Forestry, U.S. Forest Service indicating that Massachusetts intended to apply for funds for reimbursement to assist cities and towns.

In order to qualify for Federal reimbursement certain requirements had to be met. One of these was the submission of a "project proposal". The proposal outlined the current gypsy moth problem in Massachusetts, the project objective, the responsibility, the treatment areas, monitoring, methods of treatment, issues and concerns and the affected environment.

Another requirement called for the holding of a well advertised, public "scoping session". The session was held during the evening of October 20, 1981 in the New England Power Service Auditorium, Westborough. The meeting was attended by approximately 100 individuals, either representing themselves as concerned citizens, representing community interests or representing concerned

organizations. The proposal was presented, as was criteria for selection of treatment areas, biological monitoring and local involvement. Time was given for public comment and questions.

In January the Department prepared and distributed to each of the 351 cities and towns in the Commonwealth the "1982 Gypsy Moth Policy Recommendations". Although most products registered for use against the gypsy moth were mentioned, it should be noted here that the Department is continuing to place the Commonwealth on a course of recommendations that support the use of biological controls. Continued research and the development of improved application techniques are increasing the efficacy of *Bacillus thuringiensis* resulting in less dependency upon chemicals.

In an effort to determine the number of communities contemplating gypsy moth control projects, either ground or aerial, a preliminary survey was conducted using a form provided by the Bureau (Appendix #3). Results of this survey indicated that tree officials in 37 communities had determined that an aerial spray project was necessary at an estimated cost of \$1,168,000.00. Results also indicated that a total of 52 communities opted for ground control at an estimated cost of \$455,090.00.

The purpose of the survey was to compile a reasonably accurate estimate of the cost for possible reimbursement to cities and towns. At the request of the Department, a sum of money was set aside by the U.S. Forest Service for the purpose of reimbursing Massachusetts communities having conducted an aerial spray program. At the same time the Massachusetts Legislature appropriated and placed in the Gypsy Moth Budget the sum of

\$300,000.00 to be used as reimbursement to those communities having conducted ground control programs.

In order to maintain an accurate record of control activity by communities and to be assured that spraying policy as advocated by the Department is adhered to, Memorandum of Agreement were presented to interested communities. These were to be signed by local officials and by the Director of Forests and Parks. Upon completion of the spray projects, a Financial Status Report (Appendix #4) would be submitted to the Department for payment. For both aerial and ground spraying programs only those communities using *Bacillus thuringiensis* would be eligible for reimbursement. In an effort to clarify the method of reimbursement, an explanation sheet (Appendix #5) was given to each participating community.

Although, at the time of this writing, payment has not been made, it is believed that all requests have now been received. A total of 16 communities conducted ground spraying programs using B.t. at a total cost of \$193,153 thus qualifying for \$96,576 in reimbursement. Only one community aeriually sprayed with B.t. at a cost of \$47,281.00 entitling the community to \$7,593.00 in Federal money and \$6,591 of State money.

The majority of communities that conducted control programs in 1982 to combat the gypsy moth resorted to the use of Sevin. A total of 19 communities sprayed aeriually and a total of 72 communities used ground equipment. A grand total of 108 cities and towns conducted gypsy moth control programs in 1982.

As was the case with many communities, certain Department lands were confronted with a serious gypsy moth situation. *Bacillus thuringiensis* was used exclusively on Department controlled property.

GROUND PARK SPRAYING

CHARLES BURNHAM

In an effort to control the gypsy moth infestation within the recreation areas maintained by the Department of Environmental Management, the regional offices were requested to submit a list of the areas which they wished treated. This list was broken down into areas to be treated aerially and by mist blower. This report is to cover the mist blower application only. Since the spray material and the only working mist blower was stored at the Stow Headquarters, the project was coordinated there.

The acreage figures that were supplied by the regions were converted to road miles by estimating that the mist blower would penetrate 100 feet which would work out to 12 acres per road mile, one side. The Dipel was applied at the rate of 12 BIU and Chevron sticker was added at 8 ounces per 100 gallons. It was previously determined (from the Town of Lexington) that a mist blower would use 75 gallons per road mile one side.

It was decided to try to resurrect the old Hardy mist blower used by region 5 for a leaf blower. This was accomplished by installing a roller pump. With this machine operational, the crew from region 5 was assigned to do the spraying in regions 4 and 5. The bean mist blower assigned to Stow was to be used in regions 1, 2 and 3. The Foxboro crew was assigned to areas in region 1 and

the Stow crew the remaining areas. In addition to the Department property sprayed, three other state installations were treated with material they provided. A summary of the ground spraying follows:

<u>REGION</u>	<u>NO. OF AREAS</u>	<u>TOTAL GALLONAGE</u>	<u>ROAD MILES (BOTH SIDES)</u>
1	8	1,455	19.5
2	4	379	5.1
3	11	808	10.8
4	8	389	5.2
5	<u>5</u>	<u>1,235</u>	<u>16.5</u>
TOTAL	36	4,266	57.1

AERIAL PARK SPRAYING

CHARLES BURNHAM

June 2, 1982

Picked up pilot from Ag-Rotor at 6:15 in Sturbridge at the Sheraton Motor Inn and transported him to Boston to meet with Chief Hood and to get his pesticide license validated to work in Massachusetts. During this time heavy rain was experienced and when clearing occurred, the wind was quite strong. The truck from Stow arrived at Wells State Park at approximately 2:30 p.m. and was met by Supervisor Larson. It was previously agreed to meet with the pilot and ground crew at the Sheraton at 3:30 p.m. Due to gusty winds this meeting was postponed until 5:00 p.m. At this time (5:00 p.m.) the helicopter was moved from the State Police Barracks in Sturbridge where it had been kept since the previous evening to the parking lot at Wells Park. Water was loaded into the tank on the State vehicle and the Ph was checked (6.0). Some water was pumped into the contractor's mixing tank for cleaning purposes, this was scrubbed with a long handled brush and

then pumped off at the gravel pit near the parking lot. The calibration on the helicopter was checked. At 7:00 p.m. the winds had subsided enough to begin mixing. The Dipel was pumped into the contractor's mixing tank and measured by the stick method from the 55 gallon drums. Water was added to bring the final mix up to the desired level in the tank. These graduations were found to be incorrect. The Borden sticker was then added to the final mix. Spraying was secured at 7:55 p.m. after spraying 50 acres due to gust winds. Abbott Lab Representative (Stephen Sears) advised it would be acceptable to leave the mix in the tank for up to 72 hours.

June 3, 1982

At 6:00 a.m. spraying was resumed and the loading area was moved to a ball field on the Walker Pond Association property. We attempted to load with the previous day's mix, but clogging resulted in the strainer on the mixing tank and hose (samples were taken for Abbott Lab and D.E.M.). Fifteen gallons were loaded into the helicopter to test the booms and nozzles. The next load of 25 gallons, the pump filter, boom and nozzles clogged. No pressure could be developed in the helicopter spray system. This was cleared, but of the final 25 gallon load, 15 gallons had to be dumped into the gravel pit because of repeated clogging. The contractor's tank had previously been used with Sevin XLR and had been steamed clean. The overnight temperature was in the mid 40's F. The larval development at Wells State Park were in second the third instars.

At 1:00 p.m. we started to mix at Otter River State Forest using the stick method to measure the Dipel and then fill the empty Dipel barrels to measure the water. The water was obtained from a fire hydrant at the park headquarters. (Ph 6.5) When the water was added

to the Dipel in the contractor's mixing tank, an invert emulsion resulted. We then waited the arrival of the Abbott Lab Representative. He inquired from his office as the proper method to correct this situation. It was determined that the Dipel should have been added to the water not water to Dipel. The situation was corrected by adding an additional five gallons of water and two gallons of Dipel to keep this at the 12 BIU concentration. This mixture was agitated and handled properly in the spray system. Plyac was used as the sticker at 2%. The larval development was second and third instars. During this job we were joined by a second helicopter and ground crew.

At 7:30 p.m. we moved to the Pearl Hill area of Willard Brook State Forest for loading. This field was unacceptable to the contractor, so permission was obtained to use a farmer's field. The mix was made in preparation for the next morning spraying. Water was transported to the location from Otter River State Forest. This mix was done by the meter on the contractor's newly arrived truck.

June 4, 1982

At 6:20 a.m. started spraying Willard Brook and Pearl Hill simultaneously with the previous night's mix. Larval development was 90% third instars with feeding on White Pine.

At 11:00 a.m. met helicopters at beach on Stearns Pond in Harold Parker State Forest. Tank was loaded with water from pond (Ph 6.0). But high winds would not permit spraying. At 4:00 p.m. the job was secured until the weather improved. The helicopters were kept on private property near the camping area. Three days of heavy rain followed.

June 9, 1982

At 5:30 a.m. we started to mix using the contractor's meter. At

this time it was discovered that the meter was malfunctioning and a 60 gallon error was made in mixing. It was hoped that the percentage of error was the same while metering the Dipel as when metering the water. We completed spraying Harold Parker and Bradley Palmer from this one location (the Hiller helicopter ferried material to Bradley Palmer).

At 3:00 p.m. water was loaded into the tank from a brook at Massasoit State Park (Ph 6.0) while waiting for the winds to subside. At 6:00 p.m. we started to make a 130 gallon mix to add to what was left from the morning spraying. This would make a total of 210 gallon mix. The calibrations on the side of the second to arrive mix tank were used to make this and all future mixes. This park was completed and the equipment moved to start Shawme Crowell State Forest. (Helicopters were kept in the Bourne State Police Barracks) The Abbott Lab Representative was not present on this job. Larval development were third and fourth instars.

June 10, 1982

At 5:30 a.m. we started to mix with the water from the Massasoit job. No problems were encountered, and the Abbott Lab Representative arrived near completion of job.

At 7:30 a.m. we started to move to Nickerson State Park. Loading area is to be on private property. Spraying was started as soon as possible and secured at 10:30 a.m. due to winds. Water was pumped from a pond within the park (6.0) for evening completion of the job. When wind subsided, spraying was resumed and the job was completed at 7:15 p.m. No problems were encountered. Larval development were in second and third instars for both Shawme Crowell and Nickerson jobs.

During each park spraying the District Supervisor, I.P.C., was present from that respective area. The areas were marked by helium balloons in locations that the pilots requested.

Cooperative Study

University of Massachusetts

Inasmuch as the Bureau has neither the expertise, facilities or the time to carry out the type of research needed to answer some of the basic questions involved in the conduct of biological control measures against the gypsy moth a Memorandum of Agreement was reached between the University of Massachusetts and the Division of Forests and Parks. A proposal was submitted (see below) by Dr. Joseph Elkinton of the Entomology Department, U. of MA to be funded by the Division.

Development of a Gypsy Moth Management Program - Joseph Elkinton

Rationale

The Commonwealth of Massachusetts is currently experiencing the worst outbreak of gypsy moths in its history. In 1981 more than half of the state was defoliated and projections for 1982 based on egg mass counts indicate the problem will still be severe in many cases. Citizens throughout the state are concerned about potential losses of valuable shade trees and the nuisance of caterpillars on their properties. Many believe that the state government could be doing more to help alleviate this problem. However, the costs of any state-wide pesticide application program would be enormous, and there is vocal opposition from many people to chemical pesticides. It is clear that the most acceptable gypsy moth management program would be one that was implemented before the outbreak got out of hand and one that made use, where possible, of alternatives to chemical pesticides.

The work outlined in this proposal has two major objectives. The first objective is to develop a system for monitoring changes in endemic, pre-defoliation population levels as part of an integrated pest

management system for gypsy moths. The ultimate goal of such a system is to identify centers of population build-up prior to the occurrence of widespread defoliation. It is possible that early treatment of such "hot spots" might prevent the occurrence of widespread defoliation in subsequent years. The monitoring system will utilize pheromone baited traps which can detect changes in population levels at population densities far below that of any other sampling method including egg mass counts.

The second objective is to evaluate the impact of pesticide application, in particular Bacillus thuringiensis (B.t.) upon the subsequent population dynamics of the gypsy moth. Many people ask whether applications of (B.t.) or other pesticides will prevent the occurrence of the natural epidemic of nucleopolyhedrosis virus that causes the natural collapse of the gypsy moth population. Since the virus epidemic is thought to occur only in high density populations, it is not unreasonable to suggest that the epidemic may not occur in populations where the density has been lowered by applying a pesticide. On the other hand there is anecdotal evidence that suggests that the virus collapse sometimes occur even after a pesticide application has been made. The role of the virus in low density post-collapse populations, the degree of early instar virus mortality and the environmental factors that trigger virus epidemics are poorly understood. Since the Department of Environmental Management is recommending B.t. as the pesticide of choice in populated areas, it is important to get a better understanding of the conditions (if any) under which a B.t. spray might be counter productive. Furthermore, as part of this work,

we may enhance our ability to predict when or under what conditions a virus collapse will occur. If we had reliable techniques to predict a virus collapse, unnecessary sprays might be avoided.

One direct control method that has received considerable attention and field testing since 1970 (including many tests by the Department of Environmental Management) is disruption of mating with using racemic disparlure. This disruptant consists of a 1:1 mix of the female's natural pheromone (+)-disparlure and its opposite enantiomer. While numerous field trials with formulated racemic disruptant have demonstrated appreciable reductions in mating, the levels achieved have not been sufficient to justify its use of this pest. Recent findings by our group have shown that the natural chemical communication system of the gypsy moth has been characterized only partly: close range recognition of the female by the male is mediated by chemicals located on the female's wing.

These chemicals, once identified and synthesized, could provide a new approach to mating disruption. They could be incorporated with a (+)-disparlure source and a very small dose of insecticide in a formulation that could be applied aerially. This formulation would kill males lured to the (+)-disparlure because males would stay at the site long enough to be killed by the insecticide. Additionally, these chemicals might improve trap catch efficacy by altering the behavior of males at the trap entrance.

Summary

The work outlined in this proposal will lay the groundwork for a systematic program of coping with the gypsy moth in Massachusetts. Implementation of this proposal will lead to the development of a

statewide system for monitoring pre-outbreak gypsy moth populations so that control actions might be directed at population epicenters before defoliation becomes widespread. In addition we will acquire better understanding of the interaction between B.t. and the naturally occurring virus epidemic. This will give us a better ability to predict the natural collapse of the gypsy moth populations and to prevent the application of pesticide when applications would be counter-productive.

Cooperative Agreement Budget April 15, 1982 - April 14, 1983

Salaries and Wages

Field crew and lab technicians	\$ 19,680
6 students, April 15th - August 30th	
\$4.10/hr. x 40 hrs./wk. x 20 weeks	
Research Assistant - pheromones	\$ 5,500
(Ralph Charlton)	

Materials and Supplies

Pheromone traps	\$ 1,000
Burlap	100
Cups and diet	200
Survey supplies	50
	<hr/>
	\$ 1,350

Transportation Costs

2 vehicles est. 150 miles/day	\$ 5,400
@ \$0.18/mile	
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Total Direct Costs	\$ 31,930
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Indirect Costs (10% TDC)	<hr/> 3,193
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Total Costs	\$ 35,123
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Disparlure Mating Disruption Study

STEPHEN WOODS

This work was briefly described in the 1981 Report. The spray was applied in late June, 1981. The monitoring was carried out in

July and August. Egg mass counts and collections were conducted.
(See following report for details).

Title: Effectiveness of Disparlure in Mating Disruption of Male Gypsy Moths and It's Dependence on Population Quality, 1981.

Organization: Insect Pest Control, Division of Forests and Parks, Department of Environmental Management, 100 Cambridge Street, Boston, Massachusetts 02202.

Introdction: Disparlure has been demonstrated to be an effective agent in controlling gypsy moth but without consistent results. As the population density increases, so does the variability of results. One factor which has not been looked at in determining successful results is population quality.

Objective: To determine if population quality is an important factor in predicting successful mating disruption with Disparlure in populations of the gypsy moth.

Methods: Disparlure will be applied to eight 40-acre plots at a rate of 20 grams/acre. These plots will be located in two different geographical locations and will represent two populations of different quality. The high quality population is located on and around the Daughters of the American Revolution State Forest in Goshen and Ashfield, Massachusetts. For the low quality population, plots will be established in two different localities and will be monitored up until spray time. At this time one area will be selected and treated while the second will be abandoned. This is being done to minimize problems of population crash in a study area. These sites will be in and around the Wendell State Forest in Wendell and Montague and localities in Foxboro and Easton, Massachusetts. Priority for a final site

selection will be given to the Wendell State Forest. In addition to treatment plots, four control plots will be established at each locality. Egg mass densities will range from 10 - 100 egg masses/acre in the high quality population and from 1,000 - 2,500 egg masses/acre in the low quality areas.

Compass lines will be used to establish each 40-acre plot with orange tape being used to demark the outside boundaries. Each corner tree will be identified with two orange ribbons and a tag giving corner location and plot number. All plots will be a minimum of 500 feet apart. Within each 40-acre plot a centrally located 10-acre unit will be established where all sampling data will be collected throughout the study period. Sixteen 1/16th acre subplots will be counted to monitor changes in egg mass densities. Lines will be marked with pink surveyor tape and each subplot center will be marked with two pink and one blue ribbon.

Twelve egg masses will be collected from each plot. Six will be collected from below the snow line and six will be collected at breast height. One egg mass will be collected from between each subplot. Egg masses will be returned to the laboratory and tested for percent hatch, parasitism, virus load, total number of eggs per egg mass and total volume. Egg mass collection will be done at the time that plots are established.

Five host trees will be banded with burlap at 20 sites outside the subplots. Two will not be less than six inches in diameter at breast height. Larvae and pupae will be collected from these burlaps and taken to the laboratory to establish sex ratio and development timetables. Pupae will be reared through and measurements of size and weight will be made on newly emerged adults.

Percent defoliation will be estimated for each genus of trees found in the plot during peak defoliation. At this time stand composition and density will also be assessed.

During the time of adult emergence 13 pheromone traps and twelve 1/16th acre subplots will be counted to monitor male flight and estimate female density. Female subplots and traps will be alternated at each of 25 sites. The female subplots will be counted three times a week and the traps will be counted and emptied once a week.

Final results will be expressed in terms of egg mass density change, number of egg masses per female adult in the field, trap catch reduction and reduction of female mating.

Disparlure will be applied between 1 July and 10 July 1981. State police, local police and residents within 0.5 miles of the treatment plots will be notified during the week prior to the application. Notification will also appear in local newspapers and radio stations.

Rubber balloons will be used to mark each plot corner as navigational aids. Communications will be maintained by radio between the plane and ground crews.

All burlap, ribbons, tags and traps will be removed from the woodlands following the Fall egg mass counts.

The USDA Aphis researchers will provide the plane and share some of the expenses for formulation and manpower. The Bureau of Insect Pest Control and Aphis researchers will be in close contact throughout the research project.

Results: Preliminary results have now been established for the 1981 Disparlure Project. Figures one and two list the population Spring egg mass density, female density below six feet, Fall fertile

egg mass density below six feet and the mating success of females. Plots one through nine (Figure 1) are located in the D.A.R. State Forest and represent a healthy growing population. Plots twelve through nineteen (Figure 2) are in Wendell State Forest and represent a declining population. The first group in each area (one through four and thirteen through sixteen) are treatment plots, and the rest are control plots.

<u>Plot #</u>	<u>Spring Egg Mass Density (per acre)</u>	<u>Female Density Below 6 Ft. (per acre)</u>	<u>Fall Fertile EM Density Below 6 Ft. (per acre)</u>	<u>Mating Success (%)</u>	
1	18	43	21	49%	T R E A T M E N T
2	27	13	6	47%	
3	73	76	47	62%	
4	51	54	8	15%	
Ave.	42	46	20	43%	
6	15	23	18	79%	C O N T R O L
7	7	60	33	55%	
8	13	55	21	38%	
9	10	65	60	93%	
Ave.	11	50	33	66%	

Mating success reduced by 35% in treatment plots.

Figure 1 - Results from treatment and control plots for Disparlure application in D.A.R. State Forest (High Quality Population).

<u>Plot #</u>	<u>Spring Egg Mass Density (per acre)</u>	<u>Female Density Below 6 Ft. (per acre)</u>	<u>Fall Fertile EM Density Below 6 Ft. (per acre)</u>	<u>Mating Success (%)</u>	
13	1,720	354	201	57%	T R E A T M E N T
14	1,048	426	243	57%	
15	2,485	1,035	1,056	102%	
16	1,306	664	499	75%	
Ave.	1,640	620	500	73%	
12	516	406	235	58%	C O N T R O L
17	684	660	194	29%	
18	1,735	446	334	75%	
19	578	163	72	44%	
Ave.	878	419	209	52%	

Mating success increased by 41% in treatment plots.

Figure 2 - Results from treatment and control plots for Disparlure application in Wendell State Forest (Low Quality Population).

As can be seen from Table 1, the estimate of mating success in the D.A.R. plots has been reduced by 35% in the treatment plots as compared to control plots. However, due to the high variation in results, statistical analysis will have to be done to determine if the difference is significant. In the Wendell plots (Fig. 2), treatment plots have an increased success of mating as compared to control plots (41%). Statistical analysis should be applied here as well to see if the difference is significant in view of the high level of variation. Clearly, the treatment has not reduced mating success in Wendell. In the D.A.R. plots, there does not seem to be a trend for predicting

efficacy of treatment based on female population density. However, in Wendell, a correlation does seem to exist between mating success (inverse of mating disruption) and adult female density. Increased mating success in the treatment plots of Wendell may be a result of the higher female population as compared to control plots.

Discussion: Preliminary results indicate little if any success in mating disruption with Disparlure in the two locations studied here. Reduced mating success, although observable in D.A.R. treatment plots, was not as large as the difference observed as an increase in Wendell treatment plots.

Despite the lack of demonstrable success in these treatments, it should be noted that the original hypothesis was never tested. The results from D.A.R. were predicted and are consistent with work done in previous research. The Wendell population did not represent the declining population that was expected. It was hoped that continued population decline would yield an adult density in Wendell comparable to that in D.A.R. Density reduction did not occur as anticipated so female density was not comparable in the two regions (Figures 1 and 2). There is some indication that the population in Wendell may in fact be increasing again, although this will have to be determined after the final egg mass count. Differences observed in this data should be ascribed to density differences rather than population quality differences.

A large amount of data has been collected which has not been analyzed as yet. It is hoped that this information will help to determine the reasons for failure of mating disruption with Disparlure and thereby illuminate directions for future research and indicate the

limitations under which Disparlure is likely to be successful. A report of these results will be issued at a later date. The effect that population quality has on the effectiveness of mating disruption by Disparlure has not been investigated and at this point still appears to be a reasonable question to approach.

Evaluation of Gypsy Moth Traps

As A Control Mechanism

DOUGLAS TREFRY

The traps used for this evaluation were Hercon Gypsy Moth Traps from the Health-Chem Corporation, New York, New York.

A plot was established on Mountain Road in the Erving State Forest. The plot was square, 625 feet on a side or approximately nine acres in size.

As per the manufacturer's instructions, the traps were assembled and baited and set out at the rate of four per acre. This was done on June 30, 1981 prior to egg laying by the adult females. The trap area was visited weekly during moth flight and visually checked. The traps were not disturbed or handled except for an occasional spot check to determine if the males were entering the trap and being killed.

Evaluation was to be based on egg mass counts taken in the trap area and in a like number of check sites. The four centrally located trap sites were labelled A, B, C and D and used for egg mass counting. Each count was taken on a 66 foot square or one tenth acre and then multiplied by ten for the per acre count. No egg masses were counted above eight feet in height due to the problem of determining old masses from new.

At the time the trap area was established four check sites were marked along Mountain Road northwest of the traps. The first site was

AA and was approximately 520 feet from the traps and that the last was DD and 1,100 feet from the traps. The same counting system was followed. All sites counted were of the same growth except site A which did not have any hemlock or pine in it. Based on the grid pattern used, A fell in the Cut-A-Cord area. All hardwood host trees were 100% defoliated and the conifers defoliated up to 50%.

There was no reduction of egg masses in the trap area as compared to the check sites. The totals show that the counts were slightly higher in the trap area, but I do not believe it to be of any significance.

Anastatus disparis

D. Trefry

Gypsy moth egg masses heavily parasitized by this egg parasite were collected. These masses were then set out in areas of the state having no known population of this parasite. The widespread defoliation of 1981 covered much of the State's woodlands. Egg masses collected statewide failed to yield *Anastatus* where the parasitized egg masses were set out. Pittsfield - 1 site, Hancock - 2 sites, Cheshire - 1 site, Lanesboro - 2 sites, Mt. Washington - 2 sites, Warwick - 3 sites, Wendell - 2 sites, Royalston - 1 site, Brimfield - 1 site, Holland - 2 sites, Sturbridge - 2 sites, Winchendon - 1 site, Stow - 1 site, Ipswich - 1 site, Harwich - 2 sites, Brewster - 2 sites and Sandwich - 2 sites.

Egg masses will be collected from these sites in the Fall of 1982 and evaluated to determine if the Anastatus became established.

Other Parasite Work

D. Trefry

An intensive larval and pupal collection of the gypsy moth for parasite evaluation was conducted. This has not been completed. To

Results

In order to determine the growth loss in the period during the insect infestation, the annual growth before the infestation was compared to the annual growth after the infestation. The annual growth before the infestation was determined to be 250 - 300 BF/acre, valued at over \$20.00 per acre. During the infestation period (1979 - 1980), net growth fell to 110 BF/acre valued at \$6.00 in the oak-pole stands, and there was a net loss of volume and value in the oak saw timber stands. The reduction in value growth thus averaged nearly \$20.00 per year. This was the most significant result of this study. It is mostly attributable to loss in increment rather than to mortality. The situation became worse during the three year period. Mortality was not always the highest in the stands of poorest condition. The trees least affected were found to be large diameter trees with rapid growth rates, although mere crown dominance was not sufficient help.

In general, the same silvicultural techniques that promote large, healthy trees would appear to minimize the effects of the insect defoliation, although no stand with red oak species present seems immune to this study.

Aerial Survey

D. Trefry

The early gypsy moth season of 1981 caused the aerial survey for defoliation by that pest to be conducted in June of 1981. The results of the survey were reported in last year's annual report. 1981 saw the largest total acre of defoliation in the history of the Commonwealth with 2,826,095 acres recorded.

In late July, 1981 a second aerial survey was conducted in Western Massachusetts to determine the extent and severity of the Saddled

determine the extent and nature of the recent infestation of the insect in the area.

The field data used consisted of five sets: 1) pre-insect CFI measurements of 33 plots in the oak-pole and oak-saw log types; 2) CFI measurements of the same plots at the beginning of the insect infestation (1977 - 1978); 3) condition class estimates in the 1978 growing season; 4) condition class estimates in the 1979 growing season; 5) condition class estimates and dbh measurements in the 1980 growing season. These data were merged and edited so that data could be compared between time periods.

A total of 18 computer programs were written to compare various characteristics of the sample plots. Each type was run separately, although the results do not show a significant difference between them. Most of the programs display cross-tabulations between condition class estimates and another characteristic. Four variables were calculated: basal area per acre; cubic foot volume per acre (low quality trees only); board foot volume per acre (saw log trees only); value per acre (based on January 1981 "Massachusetts Roundwood Stumpage Price Ranges").

Condition class is an estimate of the relative condition of the crown. The classes used were: 1) healthy crown and a few dead twigs; 2) fairly good crown with some dead upper branches - foliage density starting to thin; 3) fair to poor crown with moderate to severe dieback - bare twigs showing; 4) very poor crown with 1/2 of crown dead; 5) foliage density and color sub-normal - heavy epicormic sprouting; 6) crown mostly dead with mainly epicormics; 7) tree dead.

plot was established in the Town of Oakham in Worcester County. In 1980 the samples collected for the 1981 prediction in Oakham showed little defoliation to be expected. This year shows a dramatic increase in the number of tier eggs present, and defoliation in the range of moderate to heavy should be expected.

With the exception of plots C & D, an increase is shown in all plots.

PLOT

A	Warwick - Stevens Swamp. Heavy defoliation	76 - 100%
B	Erving - Pinnacle & Mountain Roads. Negligible (Heavy red oak mortality)	0 - 5%
C	Erving - Moss Brook Road. No eggs	
D	Wendell - Sears Road. No eggs	
E	Wendell - Stone Road. Moderate - Heavy	26 - 75%
F	Wendell - Perry Farm Road. Moderate - Heavy	26 - 75%
G	Wendell - Carlton & Brooks Road. Moderate	26 - 75%
H	New Salem - Blackington Road. No trees - cordwood cut	
I	New Salem - Route 202. Light	6 - 25%
J	Pelham - Route 202. Light	6 - 25%
K	Oakham - Check Plot. Moderate - Heavy	26 - 75%

In plots E, F and K the egg counts were on the high side in the moderate category and are listed as moderate to heavy rather than moderate.

Defoliation from the Gypsy Moth will also occur in these plots again in 1982. This will negate classifying the defoliation at the end of the tier feeding.

Analysis of Data Related to the Oak Leaf Tier Insect

Robert Mack

An oak leaf tier study was conducted to summarize data collected in Eastern Franklin County over a period of several years in order to

date none of the parasites obtained from APHIS and released in various locations have been recovered. Other states are reporting successful recoveries, and it is expected that we shall eventually make recoveries of some of these exotic species of parasites.

Oak Leaf Tier

The expected defoliation by the tier, based on egg counts, failed to materialize. It is presumed that the heavy prolonged rains in June of 1982 were responsible for the unexpected relief from this pest. In late June, 1982, however, there were numerous adult moths present in the Wendell State Forest area. Branch samples and egg counts will be undertaken again in the fall of 1982 to determine possible defoliation in 1983.

Tier Defoliation Prediction - 1982

D. Trefru

Branch samples were collected from three sites in the fall of 1981 to determine if the insect was present and to what degree defoliation might be expected in 1982. Samples were taken in the Town of Easton in southeastern Massachusetts from the Russell, Blandford, Chester area in southwestern Massachusetts and from the eleven plots in Franklin County where the insect was first noted in the mid-seventies.

In Easton five areas were sampled. The samples averaged eight eggs each and indicate light defoliation.

In the Russell, Chester and Blandford area samples were taken from four sites. Three sites indicate negligible defoliation, and the site on Russell Stage Road in Blandford should be moderately defoliated, i.e. 26 - 75%.

In the plots established in 1977 in northeastern Franklin County to monitor the tier, it is still present. At the same time a check

Prominent infestation. Defoliation by this complex totalled 173,005 acres. This survey also revealed 15,110 acres of defoliation by the Cherry Scallop Shell Moth, Calocalpe undulata.

An aerial survey conducted on July 30, 1981 shows the following acres defoliated.

Berkshire County	126,625 acres by Saddled Prominent
	14,530 acres by Cherry Scallop Shell Moth
	4,570 acres of additional defoliation by gypsy moth
	4,620 acres of undetermined cause.
Franklin County	14,740 acres by Saddled Prominent
	580 acres by Cherry Scallop Shell Moth
	320 of additional gypsy moth
	2,750 acres of undetermined cause.
Hampshire County	31,560 acres by Saddled Prominent
	820 acres of undetermined cause.
Hampden County	80 acres by Saddled Prominent
	770 acres by additional gypsy moth
	5,030 acres of undetermined cause.
Total Acres by the Saddled Prominent	-- 173,005
Total Acres by the Cherry Scallop Shell Moth	-- 15,110
Total Acres by the Gypsy Moth	-- 5,660 (in addition to the June 1981 survey)
Total Acres by Undetermined Cause	-- 13,220

Saddled Prominent

Fred Hayward

As noted in the above mentioned aerial survey report, a total of 173,005 acres were defoliated by this forest pest. Due to concern displayed by maple syrup producers, a ground survey was conducted in

an attempt to assess the problem. The survey was conducted during the last few days of May, 1982.

Leaf sampling techniques for this insect were considered early since the major flight of adult moths occurs between May 30th through June 15th. Leaf sampling, accomplished by climbing, showed no evidence of deposited eggs on host species, and was conducted in the towns of Worthington, Cummington, Windsor and Rowe.

Extensive ground sampling, accomplished within and beneath the leaf litter of sugar maples, American Beech, Yellow and Paper Birch showed pupal cases of the Heterocampa Spp. present. These pupal cases were parasitized by a species of Carabidae (Calosoma) beetles that were present in moderate numbers in all of the test areas.

Thirty-five plots were taken in the Town of Windsor, twenty-five in the Town of Worthington, thirty-nine plots within the Town of Cummington and fifteen plots within the Town of Rowe. The majority of these areas had high populations of Saddled Prominent larvae present last year, but it appears that the populations have collapsed. These findings are inconclusive, and an attempt to further monitor these affected areas will continue throughout the summer months.

Pine Looper

Richard Kelliher

Moth activity in June, 1982 was very heavy, and more defoliation of pitch pine is expected in the Towns of Falmouth, Sandwich, Branstable, Dennis, Bourne, Plymouth and Carver.

In the Myles Standish State Forest where there has been three previous years of attack, considerable damage is evident. The aerial survey showed mortality over two-thirds of the forest. Plans are now underway to spray roadsides and campsites with mist blowers using *Bacillus thuringiensis*.

Excerpts from District Supervisor Reports

Nantucket Pine Tip Moth - Spotty in Mid-Cape and Falmouth.

Oak Mortality - Many communities have noted a sharp increase in oak mortality in the past year, and most have indicated they feel it is a result of the gypsy moth defoliation. The towns having oak mortality are: Acton, Boxboro, Carlisle, Chelmsford, Concord, Framingham, Holliston, Hopkinton, Hudson, Lincoln, Maynard, Natick, Sherborn, Shirley, Stow, Sudbury, Wayland and Weston. It should be noted that these towns have had several years of gypsy moth defoliation. All cities and towns in District #5 defoliated in 1981 showing dramatic losses and die-back in oak groups. Many hemlock and white pine lost through defoliation.

Saddled Prominent, Cherry Scallop Shell Moth and Green Striped Maple Worm - Very heavy in Northeastern Berkshire and Western Franklin Counties.

Eastern Tent Caterpillar and Forest Tent Caterpillar - Seem to be on the decline in most of District #6.

Dutch Elm Disease - Very few elms left in District #2. What we do have, a good percent of them have come down with the disease this year.

Fall Webworm and Eastern Tent Caterpillar - These appear to be on the rise throughout District #7.

ANNUAL REPORT
FISCAL YEAR 1982
BUREAU OF FIRE CONTROL
ANTONIO CASTRO, CHIEF FIRE WARDEN

General:

The indicators of a protracted fire season such as low water table, the defoliation of deciduous trees due to a serious statewide Gypsy Moth outbreak proved to be false prophets due to the intermittent light rainfall received from July through October of 1981. This precipitation negated the need for detection and suppression readiness. Thus, enabling the Bureau to shorten the fall fire season by two weeks as an economy measure.

The winter months were notable for the lack of substantial snow cover especially in the southern and southeastern sections of the state.

There were a number of fires starting in January with the advent of the open burning period and continuing through March. However, the state experienced an April cold spell and snowfall that blunted the prospects of an above average spring fire season. It appeared that the vegetation turn from cured to green when the snow cover melted away.

The Bureau suffered the loss of Chief Kenton A. Beaujean, who passed away on May 28, 1982. Ken was a fire administrator who loved his work and strived to improve the Bureau's image within the Department and fire community. Ken was innovative and more than willing to take a stand for the good of the Bureau.

The Bureau has a new assistant Regional Forests and Parks Supervisor in the person of Patsy Bisceglia, former Camp Director of the Young Adult Conservation Corps Residential Camp in Gardner, Massachusetts.

Patsy has taken over the Excess Property Program, and is working well with the program's regional coordinators.

The Excess Property Program continues to grow in the numbers of towns participating and acquiring equipment to increase their fire fighting capabilities. (See attached summary page)

The Bureau has also increased its inventory of excess property with the acquisition of pick ups, wreckers and other small equipment to facilitate the repair of fire vehicles. (See attached summary page)

The Bureau acquired two new patrol trucks (District 2 and District 5) constructed by the Farrar Company of Woodsville. A third patrol truck based on the same specifications will be delivered some time in September. These vehicles have been well received, in fact, the Town of Norwood has ordered two units based on our contract.

The radio system, more specifically Channel Two, has been upgraded with the acquisition of new tone frequencies; repeaters at four locations throughout the state; encoders installed in most multi-channel mobile units and selected base units; and eight new mobile radios.

The repeater locations are at Wachusett 71.9; Savoy Tower 123.0; Andover Tower 110.9; Railroad Bridge at Cape Cod Canal 131.8. Units will be able to select the closest repeater by setting his encoder to that unit.

We have been without the services of Joe Guertin who is recovering from major surgery. This factor has slowed down re-crystallizing of radios by Regions. Region Two has completed the change over of their sets.

The Chief and Assistant Chief have attended monthly meetings of the Massachusetts Fire Chief's Association, Massachusetts Fire Prevention Association, the Civil Defense Executive Order 144, Massachusetts Forest Fire Council and various warden and Fire Chief meetings throughout the Commonwealth. District personnel have also been encouraged to attend like organization meetings within their areas of responsibility in order to be in tune with town needs.

Prevention and Training:

The training of Bureau personnel is an on-going program within the individual fire districts to sharpen the skills and improve the fire behavior knowledge of the year-round and seasonal personnel. Training sessions have also been conducted inter-district to familiarize personnel with specialized equipment, fuel load and/or topographic characteristics that may vary from one district to another.

Statewide training was instituted for Division personnel to qualify them as inter and intra state fire fighting crews. Instructors were drawn from the Department's branches utilizing their expertise wherever called for in the lesson plans of the Basic Fire Firefighter and Fire Behavior courses.

The Bureau of Forest Fire Control in conjunction with the United States Forest Fire Service and its Northeast neighbors attended various conferences, seminars and training sessions during the past fiscal year.

In February, 1982, Chief Castro, District Wardens Bill Bennett, Joe Sakaske, Steve Frieswick and Forest Fire Control tower man John Bay attended the Compact Conference sponsored by the Northeast Forest Fire Protection Commission. New Hampshire hosted this training session.

Bureau of Forest Fire Control District Warden Jack Faustino and Fire Patrolman Bob Barrow attended the United States Forest Service Instructors Training Course in Plymouth, New Hampshire in June of 1982. Assistant Regional Supervisor Lendrum Lee, Bureau of Recreation and Robert McLean, Forester from the Bureau of Forest Development also attended. This training in proper use of visual aids, speech presentations to various audiences and lesson preparedness will enable our personnel to make professional presentations to various interested environmental groups when called upon to make such presentations. Training sessions will be held with the field personnel by the above mentioned trained personnel.

Chief Castro attended the Fire Supervisors meeting in Springfield, Missouri in June, 1982. The State of New Hampshire in conjunction with the United States Forest Fire Service sponsored the meeting. The Chief also attended the N.F.F.P.C. Compact Commission Conference in Quebec, Canada in July, 1982. The emphasis was on Training and Operations Committee Work Shops.

In January, 1982 the Massachusetts Fire Academy sponsored an Incident Command Course attended by Chief Castro and District Warden Joe Sakaske.

Rural Community Fire Protection Program:

The Massachusetts Fire Academy provides forest fire training for 210 communities with a population of under 10,000 people. Under the Rural Communities Forest Fire Protection Program the Federal government allocates \$25,100.00 to the Commonwealth of Massachusetts for this program. The Department of Environmental Management, Bureau of Forest Fire Control has been designated to administer this program.

A curriculum was established based upon the preference the rural communities indicated in the survey. Training was provided to the towns upon their requests.

A separate Accomplishment Report by the Massachusetts Fire Academy is included in this report.

Federal Excess Property Program:

The Federal government authorized the Department of Agriculture - United States Forest Service to enter into an agreement with the Commonwealth of Massachusetts and its designee, the Department of Environmental Management, Bureau of Forest Fire Control, to administer the Excess Property "Pass Through" Program. This program has generated a tremendous amount of interest from the rural fire communities in the Commonwealth.

Since the inception of the program in January, 1981, 90 communities have entered into agreements with the Bureau of Forest Fire Control to accept the excess property under the terms set forth by the U.S. Forest Service and the Bureau.

To date we have 49 transactions with 40 rural communities. They have received items ranging from a 10 ton Mack diesel tractor costing \$57,000.00 to floor jacks and power generators that reflect a total outlay of \$329,264.00.

The process of acquiring material starts with the fire chief of a town when he submits his letter requesting participation together with his prioritized list. Request for equipment must be accompanied with justification sheets which indicates the need for and how it will benefit his community and how it will be housed. We then send the chief a copy of our agreement which he signs and returns for the signatures of the Director and Commissioner.

When the desired item is available and the chief agrees to accept it, an addendum is filled out with the pertinent information of the item and signed by the chief. Copies of the agreement, addenda and receiving GSA copy are sent to the Chief, District Fire Warden, Excess Property Coordinator with the original remaining in the Boston Office.

The in-house machinery to administer the program includes five Regional Excess Property Coordinators who have the responsibility of maintaining the flow of records from the field to Boston. In the same way the flow is from Boston to the Excess Property Coordinators.

The District Fire Wardens have direct contact with their fire chiefs and he in turn will start the process from the town to the Regional Coordinator.

The Bureau has administered the Excess Property Program since the 1960's when the U.S. Forest Service enabled the States to use their high federal priority to acquire property that would improve the state's fire protection capabilities.

The present dollar value of our Excess Property Inventory is over \$1,365,000.00. The items acquired range from small fire fighting equipment to heavy vehicles modified to fight wild forest fires.

The program has enabled most of the fire districts to obtain 2½ ton vehicles which have been converted to tank trucks thereby improving their service to the communities. Other items dispersed to the districts include welders, portable generators, pumps, road graders, bulldozers, 1/2 ton and 3/4 ton vehicles.

Other bureaus have benefitted from the program through direct use of equipment when they have qualified through U.S. Forest Service guidelines, e.g. the acquisition of 55 gallon drums which have been dispersed throughout the forested areas to maximize litter control in those areas of heavy user impact.

Pre-Suppression:

The Bureau of Forest Fire Control fire crews opened up 222 miles of fire access roads throughout our state owned lands this past fiscal year. Road grading, spreading of gravel, soil erosion, widening narrow lanes and brush cleaning from sides of existing roads played a major role in this construction process. Many water holes were dredged and cleared of encroaching brush.

The forest fire construction maintenance crew spent many hours rehabilitating many of our old standing towers throughout the Commonwealth. This crew consisted of a construction supervisor and three (3) skilled laborers.

At the Savoy tower in district #12 a new roof was installed along with extensive interior repair work. Window moldings and casings were also replaced.

In fire district #4 a new roof was installed at Holbrook along with ceiling repair and the installation of new windows and casings.

At Dover, in the same district, many man hours were spent on window replacing, casing replaced and extensive interior rehabilitation.

At the Carver tower in fire district #2 a new roof replaced our worn old one. At the Kingston tower in the same district extensive repair work was performed to the roof damaged by storms.

The Goshen tower in fire district #10 had extensive replacement work done on its power lines leading to the tower. Twenty-five (25) new poles were installed along with three thousand, five hundred feet (3,500) of new telephone lines.

At the Sunderland and Shelburne towers in fire district #9 extensive power line replacement and repair work on the power line poles was performed. All cross arms were replaced and new metal pins installed replacing old wooden type pins. There was also considerable telephone line repairs.

In addition to all the forest fire related projects, many man hours were performed for the Bureau of Recreation outdoor projects.

Detection:

The detection systems in Massachusetts are still provided by a combination of aerial observation and ground observation stations. In the counties east of Worcester County, ground observation stations are maintained and operated by the Commonwealth. This system is backed up during periods of high fire danger in Plymouth and Barnstable counties by county supported planes. In the counties from Worcester west, a combination of ground observation and aerial observation are utilized and are supported entirely by the state.

Aerial detection patterns for counties west of Worcester have been modified to give these counties maximum Forest Wild Fire detection.

The past flight pattern for D.E.M. Region 3, Southern Worcester County, has been eliminated in order to increase the frequency of aerial detection flights over Northern Worcester County which has a higher forest density. Flight pattern #3 includes West Boylston north to Fitchburg, northwest to Royalston and south to Hardwick all in Northern Worcester County.

Flight pattern #4 in Franklin, Hampshire and Hampden Counties, D.E.M. Region 4, have been similarly condensed from an "A" type aerial flight pattern to a rectangular flight pattern. This extends from Russell in Hampden County north to Leyden in Franklin County, northwest to Heath in Franklin County, it then proceeds south to Blandford in Hampden County.

Flight pattern #5 in Berkshire County, D.E.M. Region 5, remains the same as in the past. From New Marlboro, north to Clarksburg, northwest to Williamstown, it then proceeds south to Sheffield. On extreme fire danger days a fourth flight pattern will be activated between Northern Worcester County and the existing flight pattern in D.E.M. Region 4. This in effect will give us the maximum Forest Wild Fire protection for our woodlands and our homeowners.

Due to the high population density of Massachusetts, the number of wild fires that start is very high, 8,000 to 10,000 in an average year. As a result, aerial observation is not proving to be particularly effective, with the possible exception of Berkshire County. In the Connecticut Valley and Worcester County areas, there are just too many fires occurring to make aerial detection a practical method of detecting wild fires.

In order to increase our efficiency in the area of detecting and observing fires, the Bureau is now looking at the possible use of a fixed point infra-red system with a ground observation system and

aerial system. The fixed point infra-red system would report back to a ground observer who would sort out the controlled or legal fire from the uncontrolled fires. This would be backed up with aerial observation when and where necessary. The Bureau will be looking into this technology in order to determine if this system might have application here in Massachusetts.

Prevention:

Prevention programs have traditionally been conducted within the fire district. On the average, 40 prevention programs were conducted in each district. Each district warden orders a supply of prevention material which fit the particular need of his area. The emphasis remains with the K to 6th grade level. Smokey the Bear still remains popular with this education group.

The Bureau in cooperation with the Garden Club Federation of Massachusetts sponsored the Smokey the Bear - Woodsey Owl Poster Contest held statewide in 1982. Awards were presented to the winners by the respective fire wardens and garden club local presidents. Smokey was also in attendance at these presentations.

The Bureau was also representative at various educational facilities during the Annual Fire Prevention Week activities hosted by all the Fire Departments throughout the Commonwealth.

Bureau personnel, along with Smokey the Bear have participated in many parades, festivals and numerous civic functions when called upon by local fire officials.

Criminal citations for disobeying the Forest Fire Laws of Massachusetts played an important role in our prevention program. There were 490 warnings and citations issued this past fiscal year. Bureau personnel have conducted inspections of logging operations throughout the state with the heaviest load by the Berkshire fire crew. This activity serves a two-fold purpose; by the logger complying with accepted fire minimizing measures and familiarizing our personnel with fuel conditions and terrain they might not have been exposed to normally.

The Bureau periodically distributes fire prevention slides and film to district wardens for display throughout their districts.

The Chief has devised a network of Fire Prevention and Suppression Committees made up of District Wardens to enable the Bureau to have every phase of its work schedule completely active. Assignments have been classified to reflect the following categories: Federal Excess Property, Training and Education, Weather Detection Systems, Communications, Inventories and Reports, Equipment, Law Enforcement, Non-Fire Emergencies, Safety, Supplies and Uniforms and Prevention Programs statewide.

Suppression:

Of all the activities that are included in fire protection, the suppression activity is probably the one that reflected the passage "Proposition 2½" first. After last Spring's election results, many communities began to prepare to cope with the effects of Proposition 2½ by reducing manpower and expenses. This resulted in additional calls for assistance with manpower and equipment to the Bureau. (See Summary of Monthly Activity Reports).

Problems which were primarily a result of increased costs of gasoline were encountered in the travel subsidiary. This made it difficult sometimes to know whether or not we would be able to respond to calls for assistance. However, through the ingenuity of district personnel and transfers that were made, the Bureau did respond to all requests that were made for assistance.

This year the Bureau was again able to provide helicopter water drops on a limited basis. Bid proposals were solicited this past spring and Ag-Air of Hanson, Massachusetts was the successful bidder.

During the Class "F" wild fire at Otis Air Base in May, 1982, which consumed over 1,200 acres of forest land, fighting the fire with land base personnel was almost an impossibility, due in fact to the hazardous conditions which prevailed within the Otis Campground area. This is an artillery impact area used by the Army since 1940 to train personnel in the proper use of artillery firing and other missile firing operations. Live ammo shells in the burning area made it impossible to attack the fire in the conventional manner. Ag-Air of Hanson, Massachusetts did not respond to the Chief's request for immediate water drops. Upon recommendation of the Bureau Chief, Ag-Air's contract was terminated. At a meeting with Director Gilbert A. Bliss, Chief Castro and the Massachusetts Air National Guard Adjutant General, an agreement was reached whereby the Air National Guard will respond to wild forest fire emergency situations when called upon by the Chief, Massachusetts Bureau of Forest Fire Control. Air National Guard helicopters will assist in water drop operations.

Chief Castro met with John L. Warnock, RCFP, U.S. Forest Service, Fire Protection Specialist August 3rd, 1982 at Otis Air Base to

dissuss control burning of the acreage in the artillery compact area. Agreement was reached with the U.S. Air Force to exchange technological knowledge about the impact area. The aerial ignition system of burning was discussed by using either Mark II Aerial Ignition, (Potassium Permanganate and Ethlene Glycol) or the Flying Drip Torch.

The Department has had a long standing policy that though the local cities and towns have the statutory responsibility for all fires that occur within their borders, either state or private, we, the Department, automatically respond to fires occurring on land under our control to assist. Though, we are not statutorily responsible, it has always been felt that we are morally obligated to the communities to do this. It is my feeling that the same policy should be extended to cover all land under the Commonwealth control. This policy might even be extended to other lands from which the communities do not receive any tax revenues. It does not mean that the local communities would automatically respond to assist with the resources that we had available.

Though there has been restraints throughout the Commonwealth due to budget cut-backs, this has been a very productive year in all phases of forest fire fighting.

SUMMARY OF ACTIVITIES - FY 1982 - BUREAU OF FIRE CONTROL

DISTRICTS	1	2	3	4	5	6	7	8	9	10	11	12	14	TOTALS
Miles Patrolled	42,483	28,214	29,982	24,404	31,689	9,663	29,204	30,412	31,343	25,372	44,967	26,998	20,150	374,881
# Warnings & Citations	231	73	4	0	75	25	4	4	0	14	32	15	13	490
# Prevention Programs	16	121	54	42	26	44	20	32	6	40	31	18	93	543
# Logging Operations Ins.	0	50	33	26	25	12	19	15	14	34	28	309	9	574
# Fires Detected - Towers	253	798	307	527	283	62	30	39	21	94	61	15	76	2,566
Aircraft	-	-	-	-	-	-	-	8	4	18	10	5	-	45
# Acres Burned	2,862	238	711.95	700	539	239	235	212	3225	288.15	783	188	266	10,487.
# Fires Reported	43	668	935	652	0	420	143	205	89	297	834	327	274	4,887
# Truck Runs-Div. Land	3	8	9	0	0	2	7	0	0	5	14	2	7	57
Other Land	10	26	15	27	0	5	25	17	7	10	8	25	49	224
Miles of Access Rds Open	6	44	42	10	54	3	6	8	6	30	10	3	0	222
# Times Assistance Requested	27	49	-	22	10	-	32	-	-	-	-	18	-	158
# Assists to Cities & Towns	29	39	23	20	10	10	-	17	5	27	91	19	90	380
Manpower	65	34	23	22	3	10	30	2	5	25	31	40	90	378
Equip.	31	43	23	20	10	10	30	13	5	22	33	22	52	314
Pumps	23	12	23	20	10	10	29	6	5	11	18	22	34	223
Hose	11	0	23	20	10	10	30	2	5	11	12	22	34	190
Natural Disaster	0	1	0	0	0	1	1	0	0	0	0	0	0	3
# Tr'g Programs-In-house	6	0	19	35	2	20	27	12	20	41	24	61	27	327
Other	1	0	0	0	0	2	0	5	2	24	7	0	0	41

*Total fires and acreage before redlining to exclude urban areas.

SUMMARY BY DISTRICTS

JULY 1981 - JUNE 1982

DISTRICT	NO. FIRES	ACRES	COST
1	504	2,828.75	\$182,414.50
2	463	155.75	9,546.00
3	1,020	753.15	63,884.40
4	810	742.75	35,062.33
5	410	665.25	6,227.00
6	501	566.50	26,792.50
7	345	594.75	34,357.00
8	674	296.50	39,879.68
9	148	43.05	13,581.30
10	355	355.25	23,565.75
11	837	658.65	45,655.50
12	260	187.00	34,521.00
14	202	526.00	15,213.00
	6,529	8,373.35	\$530,699.96

SUMMARY BY CAUSES

JULY 1981 - JUNE 1982

DISTRICT	LIGHT.	CAMPER	SMOKER	DEBRIS	INCEND.	EQUIP. RISE	R.R.	CHILDREN	MISC.	TOTAL
1	-	23	34	80	51	37	1	133	145	504
2	1	32	41	20	247	3	-	66	53	463
3	-	14	20	101	406	6	3	225	245	1,020
4	-	19	13	40	361	8	4	361	4	810
5	-	1	1	77	120	-	-	131	80	410
6	-	5	14	36	35	1	10	252	148	501
7	33	5	15	48	92	3	3	136	10	345
8	1	24	35	81	39	19	40	164	271	674
9	2	5	18	28	31	13	29	17	5	148
10	-	19	51	82	56	15	4	101	27	355
11	-	46	24	194	111	6	38	247	171	837
12	-	2	1	25	210	3	19	-	-	260
14	-	7	6	6	23	2	3	143	12	202
	37	202	273	818	1,782	116	154	1,976	1,171	6,529

ACREAGE BURNED (TYPE OF AREA)

JULY 1981 - JUNE 1982

DISTRICT	COMMERCIAL FOREST	NON-COMMERCIAL FOREST	NON-FORESTED WATERSHED	NON-FOREST
1	1	2,828.75	1	1
2	1	149.50	25	6
3	86.50	173.75	16	476.90
4	36.25	530.75	3.50	172.25
5	338.25	239.75	10.00	77.25
6	172.00	190.00	8.75	195.75
7	555.00	3.50	1.00	35.25
8	1	227.10	8.10	61.30
9	23.15	19.90	-	-
10	172.75	73.00	10.00	99.50
11	56.00	435.35	-	167.30
12	51.25	79.50	4.50	51.75
14	3.00	461.75	-	61.25
TOTALS	1,494.15	5,412.60	62.10	1,404.50

FIRES (SIZE BY DISTRICT)

JULY 1981 - JUNE 1982

(FIRE CLASSIFICATIONS)

DISTRICT	A	B	C	D	E	F	TOTAL
1	433	64	2	3	1	1	504
2	433	30	-	-	-	-	463
3	589	424	7	-	-	-	1,020
4	597	203	9	1	-	-	810
5	331	64	15	-	-	-	410
6	166	332	3	-	-	-	501
7	167	163	15	-	-	-	345
8	520	152	2	-	-	-	674
9	120	28	-	-	-	-	148
10	183	170	2	-	-	-	355
11	550	277	10	-	-	-	837
12	79	180	1	-	-	-	260
14	48	140	14	-	-	-	202
	4,216	2,227	80	4	1	1	6,529

FIRE CLASSIFICATIONS

A - .25 acres or less
 B - .26 " " to 9.9
 C - 10 " " to 99.9
 D - 100 " " to 299.9
 E - 300 " " to 999.9
 F - 1000" " to 4999.9
 G - 5000" " or more

RCFP - FIRE ACADEMY
ACCOMPLISHMENT REPORT
COVERING 3 OF 4 PERIODS
STARTING 10/1/81 AND TERMINATES 9/30/82

Total for period ending June 30, 1982

<u>PERIODS</u>	<u>TOWNS SERVED</u>	<u>PROGRAMS</u>	<u>STUDENTS</u>	<u>HOURS</u>
10/1/81 - 12/31/81	13	14	632	312.0
1/1/82 - 3/3/82	13	15	474	477.0
4/1/82 - 6/30/82	<u>13</u>	<u>14</u>	<u>547</u>	<u>449.0</u>
TOTALS	39	43	1,643	1,238.0

ANNUAL REPORT
FISCAL YEAR 1982
BUREAU OF URBAN SERVICES
ROBERT FREEDMAN, COORDINATOR

URBAN SERVICES

The need for an urban services component in the Division of Forests and Parks has become even more pressing this year as the development of the Urban Heritage State Park system moves from the design stage to actual construction: four of the eight Heritage Park projects were bid for construction by the end of the fiscal year, and the remaining four are only a few weeks from that point.

Starting with a new, one million dollar boathouse in Lowell, it is expected that the Heritage Park projects will come on line starting in the Spring of 1983 and continuing until the last park is completed by late 1983 or early 1984.

During Fiscal Year 1982, the Division of Forests and Parks continued to review Heritage Park designs and specifications and provided considerable input into the layout, materials and designed public uses of each of the parks. As a result of the Division's initiative, several outdoor furnishing items (eg, park benches) were standardized throughout all the Heritage Parks which will be managed by the Division. The reasons for this were two-fold: (1) to provide a common visual identity to all the Heritage Parks, and (2) to simplify the repair and replacement of these items by the Division in years to come. A design checklist was also developed to insure that certain management concerns were addressed in each design. These concerns

primarily related to the manageability of the Heritage Parks by the Division of Forests and Parks, in terms of their utility and enjoyment by the public; efficiency of maintenance; and supervision of the public (security, safety, etc.).

Organizational charts and staffing plans, prepared during the previous fiscal year, were updated and finalized and will be used as the basis for the Fiscal Year 1984 personnel budget request for the staffing of the Heritage Parks and the proposed Bureau of Urban Services. The Bureau of Urban Services will be responsible to the Director of Forests and Parks for the program management of the Heritage State Parks as well as various technical services to urban communities.

An innovation in the management of the Heritage Parks has been proposed by the Division: Management of all or a portion of the Western Gateway Heritage State Park (North Adams) and the Lynn Heritage State Park by local, non-profit, community-based organizations. Implementation of this plan hinges on funding approval in the Fiscal Year 1984 operating budget.

The Division's sailing program in Fall River completed its second successful season during the fiscal year. The Division doubled the capacity of the program by lengthening the season and increasing the number of boats available for instruction. The program was almost filled to capacity with ninety-one out of a maximum of ninety-six participants completing the program. The age of the participants ranged from ten to sixteen. A majority of the participants came from Fall River and the remainder from towns and cities in Bristol County. In addition to instruction in the skills and techniques of sailing, all participants had to complete the State Safe Boating Course which was

held in the "Admiral's Quarters" on board the Battleship U.S.S. Massachusetts.

Lowell Heritage State Park, presently the only Heritage State Park open to the public, completed its second full year of operation. The park has become a popular visitor attraction in the system of state parks. Total attendance has almost tripled from the previous year to 172,000 visitors. With professional program supervision and highly trained interpreters, the interpretive tour program appears to be the most successful visitor attraction. The Mill and Canal Tours (a joint program with the National Park Service), Self-guided Tours, and the Special Interest (Waterpower) Tours were attended by 96,896 people. The successful "Living History" component of the Mill and Canal Tour continued for its second season. The program, which was originated by the Division, consists of Division interpreters dressed in period costume interpreting the City, the canal system, and life as it was in Lowell over one hundred years ago.

The Greater Lowell Regatta Festival Committee managed a community sailing program on the Merrimack River for the third year. The program brought a lot of attention to the Vandenberg Esplanade - the riverfront park component of the Lowell Heritage State Park. Several meetings were held with the Greater Lowell Regatta Festival Committee to discuss a management contract whereby the Committee would manage a public boathouse which will be constructed during the ensuing fiscal year. Also at the Vandenberg Esplanade, the Sampas Pavilion - a performing arts facility - attracted approximately 35,000 visitors to various events.

The Lowell-Dracut-Tyngsboro State Forest drew approximately 20,000 users, with hiking and cross-country skiing being the most popular activities. The Forest is unique in its proximity to downtown Lowell and will someday be physically connected to the Vandenberg Esplanade, making it an important adjunct to the Lowell Heritage State Park.

A variety of interpretive and recreational activities were held at the park visitors' center, in the fourth floor multi-purpose room, attracting approximately 4,000 participants. The visitors' center currently houses a temporary exhibit, including an audio-visual slide show focusing on the park's waterpower theme. The final design of a permanent exhibit neared completion during Fiscal Year 1982, with fabrication scheduled to start some time in the Fall of 1982.

Also nearing completion, or completed during the year, were the final designs for the park plazas on each side of the Mack Building; the northerly extension to the Vandenberg Esplanade; the new boathouse; and, restoration of the old bathhouse into a modern, more efficient bathing facility which will open when the Merrimack River reaches swimming quality.

A P P E N D I X

SUMMARY OF LAND ACQUISITION AND CONSTRUCTION

SUMMARY OF RECREATION REVENUE

SUMMARY OF RECREATION ATTENDANCE

SUMMARY OF RECREATION BUDGET

FOREST CUTTING PRACTICES

GYPSY MOTH POLICY - 1982

BUDGET APPROPRIATIONS - F.Y. 1981 - F.Y. 1982

SUMMARY

LAND ACQUISITION & CONSTRUCTION - FISCAL YEAR - 1982

MISCELLANEOUS CONTRACTS

<u>TITLE OF EACH CATEGORY</u>	<u>NUMBER OF CONTRACTS OF EACH CATEGORY</u>	<u>TOTAL DOLLAR VALUE OF EACH</u>
Appraiser	18	\$ 56,175.
Title Examiner & Legal Assistance	7	57,197.
Designer	5	318,714.
Surveys	3	8,000.
Construction	8	634,491.
Resident Planners & Engineers	13	477,000.
<u>TOTALS</u>	<u>CONTRACTS = 54</u>	Cost \$ 1,551,577.
<u>LAND ACQUISITION</u>		
<u>NUMBER OF PARCELS</u>	<u>AMOUNT OF ACREAGE</u>	<u>TOTAL COST OF PARCELS</u>
40 parcels	1,610 acres	\$ 1,497,755.
	GRAND TOTAL =	\$ 3,049,332.

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK CONSTRUCTION	FISCAL YEAR
1	Boston Harbor Islands State Park	47-81	Rev-Lyn Contracting Co.	98,498.35	3/31/82	Construction of bulkhead at Hewitt's Cove	82
1	Fall River Heritage State Park	56-82	K. R. Rezendes Inc.	34,250.00	4/20/82	Storage tank demolition and removal	
1	Fall River Heritage State Park	40-81	L.A.L. Construction Co. Inc.	39,989.00	7/31/8	Construction of a sitting area	
1	Nantucket State Park	44-81	Reynolds Bros. Inc.	18,730.00	9/21/81	Tubular steel gate construction	
1	Nickerson State Park Brewster	43-81	Tilcon-Warren	14,591.80	8/13/81	Road relocation	
1	Wompatuck State Park Hingham	60-82	R. D. Lighting Associates	15,645.00	5/3/82	Outdoor lighting replacement	
4	Holyoke Range State Park Amherst	39-81	Ciocca Construction Corp.	377,727.00	8/27/81	Visitor's Center construction	

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	GENERAL CONTRACTOR	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF WORK CONSTRUCTION	FISCAL YEAR
5	Mt. Washington Tolland Charlemont Granville	58-82	A & W Artesian Well Co.	35,060.00	4/15/82	Drilled wells installation	82

REGION	FOREST/PARK RESERVATION	CONTRACT NUMBER	ARCHITECT	CONTRACT AMOUNT	CONTRACT DATE	SCOPE OF SERVICES DESIGN	FISCAL YEAR
1	Fall River Heritage State Park	48-81	I. T. Almy Associates	99,620.00	12/23/81	Landscape architecture, engineering and professional services relative to park development	82
3	Blackstone River and Canal Heri- tage State Park	P-1-81	John Knox, Planner	30,000.00	8/23/81	Master plan park development	
3	Gardner Heritage State Park	52-81	Thomas Mayo Associates	53,594.00	12/28/81	Final design documents, e.g. archi- tecture, engineering and professional services	
4	Holyoke Heritage State Park	50-81	City Design Collaborative	137,500.00	12/31/81	Architectural, engineering and pro- fessional services essential to park development	
5	Mt. Greylock State Reservation	54-81	Bradley Architects	28,000.00	12/28/81	Design services necessary to renovate and rehabilitate Bascom Lodge	

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1982

Land Acquisition - 7/1/81 to 6/30/82

Page 1 of

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST (\$)
Fall River	Fall River H.S.P.	U.S.S. Massachusetts Development Corp.	7/9/81	8. A	\$ 585,000.
Northbridge & Uxbridge	Blackstone River S.P.	P. Oscar Picard	8/19/81	8.79A	3,500.
Harwich	Hawksnest Pond	Kathryn M. Morgan, Trustee	8/20/81	1.8 A	6,000.
Northbridge & Uxbridge	Blackstone River S.P.	Stanley Woolen Co.	8/24/81	121. A	27,500.
Northbridge & Uxbridge	Blackstone River S.P.	Russel J. Braman & Ethel M. Consiglio	8/24/81	15.45A	5,000.
Sunderland	Mt. Toby S.F.	Arlene Tower Et Al & John Klemmyk	9/9/81	180. A	45,000.
Great Barrington	Appalachian Trail	Robert Shapiro	9/18/81	2.13A	5,500.
Wellfleet	Cape Cod Bike Trail	Penn. Central Corporation	10/13/81	4.76A	3,808.
Wellfleet	Cape Cod Bike Trail	Penn. Central Corporation	10/13/81	5.3 A	4,306.
Cheshire	Appalachian Trail	Edward & Dorothy Krutiak	10/14/81	47. A	20,240.
Hadley	Holyoke Range	Stanley & Frances Kulas	10/22/81	37. A	39,000.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1982

Land Acquisition - 7/1/81 to 6/30/82

Page 2 of

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST (\$)
Granby	Holyoke Range	Leslie & Patricia Reynolds	10/22/81	2.7 A	\$ 11,000.
Granby	Holyoke Range	William Gallup	11/12/81	20. A	6,600.
Granby	Holyoke Range	Edward & Marine Stack	11/12/81	9.5 A	16,500.
Granby	Holyoke Range	John & Marie Hanson	11/12/81	12.5 A	26,000.
Hawley	Hawley S.F.	Gerald & Elizabeth Greene	11/20/81	32.19A	11,300.
Mount Washington	Appalachian Trail	Peter Pshenishny	12/4/81	32.5 A	24,500.
Cheshire	Appalachian Trail	Hazel M. Anthony	12/17/81	80.75A	24,225.
Northbridge	Blackstone River S.P.	David & Joyce Bellerose	2/2/82	2.19A	15,200.
Northbridge & Uxbridge	Blackstone River S.P.	Jeannette A. Bedard	2/2/82	32.2 A	15,100.
Uxbridge	Blackstone River S.P.	Alton & Mary White	2/2/82	2.06A	3,000.
Northbridge & Uxbridge	Blackstone River S.P.	John L. Steen	2/2/82	12.77A	12,800.
Uxbridge	Blackstone River S.P.	Benjamin & Jennie Wisnowski	2/2/82	.53A	3,500.
Princeton	Wachusett Mountain S.R.	Ralph D. Crowley	2/8/82	8. A	Gift
Northbridge	Blackstone River S.P.	Mae A. Brown Et Als.	3/3/82	20.98A	27,750.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1982

Land Acquisition - 7/1/81 to 6/30/82

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LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST (\$)
Princeton & Westminster	Wachusett Mountain S.R.	Commonwealth of Mass.	3/12/82	450. A	Thirty Year Lease
Northbridge	Blackstone River S.P.	Blanche Aubin	3/22/82	2.18A	1,700.
Northbridge & Uxbridge	Blackstone River S.P.	Lawrence E. Darcy	3/23/82	17.9 A	9,600.
Northbridge	Blackstone River S.P.	Earle & Grace Cleary	3/23/82	4.62A	2,500.
Hadley	Holyoke Range	Trustees of Hampshire College	3/25/82	78.89A	71,500.
Monterey	Appalachian Trail	Virginia N. Cesario	3/25/82	5.15A	12,000.
Great Barrington & Monterey	Appalachian Trail	Rose Oremland Et Als	3/25/82	4.56A	8,426.
Natick	Cochituate S.P.	Penn. Central Corporation	4/28/82	.558A	3,000.
Ipswich	Willowdale S.F.	Robert & Phyllis Cram	5/3/82	.09A	Gift
Middlefield	West Branch Westfield River	Gwendolyn A. Parker	5/4/82	270. A	98,500.
Holyoke	Holyoke Heritage S.P.	Consolidated Rail Corporation	5/6/82	5.08A	330,000.
Northbridge	Blackstone River S.P.	John Smith or Heirs	6/3/82	22.63A	8,200.

ACQUISITION & CONSTRUCTION

FISCAL YEAR 1982

Land Acquisition - 7/1/81 to 6/30/82

Page 4 of

LOCATION	AREA	GRANTOR	DATE RECORDED	ACREAGE	COST (\$)
Dalton	Appalachian	Berkshire Natural Resource	6/14/82	48.9 A	\$ 10,000.
Mount Washington	Bash-Bish Falls S.F.	Ovsay Lipetz	6/14/82	--	Release Life Estate
Carlisle	Great Brook Farm S.P.	Commonwealth of Mass.	6/15/82	--	Easement

FORCE ACCOUNT LABOR REPORT

<u>AR#</u>	<u>REG.</u>	<u>FOREST/PARK RESERVATION</u>	<u>ALLOTMENT AMOUNT</u>	<u>SCOPE OF WORK</u>
160	1	Boston Harbor Islands State Park	50,000.00	Rehabilitation of Building #45 at Hewitt's Cove Hingham, including windows, insulation, lighting, electrical & plumbing work.
168	2	Hopkinton State Park	4,000.00	Refurbishment of bathhouse/comfort station i.e., repair tiles, replace toilets, install metal partitions.
168	2	Cochituate State Park	600.00	Protective covering on the boathouse, replacement of exterior walls.
202	2	Walden Pond State Reservation Concord	18,000.00	Construction of a walkway, rehabilitation of erosion control mechanisms, construction of overhead doors (Stowe).
	3	Moore State Park Paxton, Mass.	75,000.00	Construction of a small museum and public restroom and restoration of a period schoolhouse to it's original 19th century condition.
168	3	Douglas State Forest	8,000.00	Reconstruction of the bathhouse tool complex destroyed by fire.
	4	Hampton Pond State Park Westfield	50,000.00	Lambert's Beach area improvements e.g., expansion & upgrading of parking lot, picnic area & beach, regrading & landscaping.
169	4	Holyoke Range State Park South Hadley	80,000.00	Rehabilitation of Mt. Holyoke Summit House involving construction of concrete foundation walls, reinforcement of floors & stairs.
152	4	Chicopee State Park Reservation	10,000.00	Construction of skylights doors, louvres, lights, metal toilet stalls, plumbing fixtures, interior and exterior painting of pagoda
152	4	Wendell State Park (Ruggles Pond)	2,000.00	Installation of culverts and vault-type comfort stations.
152	4	Chester State Forest	5,000.00	Road construction and repairs, culverts and gravel.
152	4	Erving State Park (Laurel Lake)	4,000.00	Vault-type comfort stations and building to cover water tank.
152	4	Granville State Forest	1,000.00	Vault-type comfort stations

FORCE ACCOUNT LABOR REPORT

<u>AR#</u>	<u>REG.</u>	<u>FOREST/PARKS RESERVATION</u>	<u>ALLOTMENT AMOUNT</u>	<u>SCOPE OF WORK</u>
152	4	Mohawk Trail State Forest, Charlemont	3,000.00	10' x 12' contact station; sand for swimming pool.
168	5	Clarksburg State Forest	2,500.00	Repairs to the caretaker's house.
	5	Mt. Greylock State Reservation Lanesborough	3,500.00	Replacement and reinforcement of vandalized Vietnam Veteran's Memorial plaque, Bascom Lodge water softener system.
		TOTAL	\$316,600.00	

1982 SUMMARY OF REVENUE

<u>AREA</u>	<u>DAY-USE</u>	<u>CAMPING</u>	<u>OTHER</u>	<u>TOTALS</u>
OCEAN BEACHES	350,188.50	387,764.00	16,446.68	754,399.18
SKATING RINKS	2,074,674.60		75,433.74	2,150,108.34
SWIMMING POOLS	50,861.70		3,346.09	54,207.79
FORESTS AND PARKS	579,004.35	810,268.50	338,780.71	1,728,053.56
<u>TOTALS</u>	3,054,729.15	1,198,032.50	434,007.22	4,686,768.87

B E A C H E S F Y 1 9 8 2

	<u>PARKING</u>	<u>CAMPING RECEIPTS</u>	<u>WALK-INS</u>	<u>SEASON PASS</u>	<u>BATHHOUSE</u>	<u>CONCESSION</u>	<u>LOCKERS</u>	<u>PAY PHONE</u>	<u>MISC.</u>	<u>BUS</u>	<u>TOTALS</u>
FT. PHOENIX	7,203.00			5,125.00		55.00					12,383.00
HORSENECK	173,738.00	42,312.00	38.50	28,170.00		125.00	57.60	43.77	182.00	760.00	245,426.87
SALISBURY	75,567.00	238,304.00		15,420.00		10,591.00		776.08		300.00	340,958.08
SCUSSET	<u>39,842.00</u>	<u>107,148.00</u>		<u>4,025.00</u>		<u>4,373.00</u>		<u>215.23</u>	<u>28.00</u>		<u>155,631.23</u>
TOTALS	296,350.00	387,764.00	38.50	52,740.00		15,144.00	57.60	1,035.08	210.00	1,060.00	754,399.18

R I N K S F Y 1 9 8 2

	<u>CHILDREN</u>	<u>GROUP</u>	<u>ADULTS</u>	<u>SPECIAL EVENTS</u>	<u>RENTALS</u>	<u>SPECTATOR WALK-INS</u>	<u>LOCKERS</u>	<u>CONCESSION</u>	<u>PAY PHONE</u>	<u>MISC.</u>	<u>JOGGING</u>	<u>TOTALS</u>
AUBURN	4,310.00		7,635.75	1,707.50	85,743.50	562.95	469.65	3,501.00	37.36		18.50	103,986.21
BROCKTON	9,300.25		7,452.25	3,449.50	128,186.25	41.50	436.70	5,986.50	112.80			154,965.75
FALL RIVER	6,562.00		6,563.00	4,212.00	108,900.00	34.00	806.70	10,502.00	121.94	11.40		137,713.04
FRANKLIN	7,585.25		7,710.50	6,834.00	119,694.00	4.00	572.00		112.54	32.50	21.50	142,538.14
GARDNER	4,399.00		4,189.50	1,599.50	87,337.50	49.90	262.00	1,166.75	33.92	9.50		99,047.57
GREENFIELD	2,464.50		3,397.00	1,545.75	57,722.50		72.50	4,450.00		125.00		69,777.25
HAVERHILL	5,162.00		4,944.00	348.00	107,800.00		325.60		29.98			118,609.58
HOLYOKE	3,257.00		3,405.00	2,563.00	94,902.50		240.50	6,207.64				110,575.64
LOWELL	7,627.75		9,804.75	496.25	116,352.50	12.50	1,020.40	6,001.51	84.41			141,400.07
MARLBORO	4,972.50		6,925.25	2,379.25	93,575.00		374.80	3,700.00	35.49			111,962.29
NEW BEDFORD	4,243.50		5,162.50	6,249.00	110,252.50	10.00	515.70		205.87			126,639.07
NEWMURYPORT	5,614.50		6,074.00	9,832.50	115,910.00		288.90	7,766.50	81.90		125.50	145,693.80
NORTH ADAMS	2,683.25		3,477.25	1,156.50	49,142.50		93.30	2,205.00	13.38			58,771.18
PEABODY	6,089.75		5,881.25	4,739.50	120,253.50		309.50		21.01			137,294.51
PLYMOUTH	6,880.00		5,602.00	2,186.00	102,712.50	19.50	574.00	6,640.00	97.27			124,711.27
SPRINGFIELD	3,614.75		4,722.00	546.00	100,697.50	4.00	211.50	3,500.00				113,295.75
TAUNTON	3,364.00		4,435.00	4,964.75	118,000.00	11.00	319.00	5,201.00	86.12			136,380.87
WORCESTER	8,391.50		6,886.50	1,749.00	99,391.50	4.50	307.00		16.35			116,746.35
	96,521.50		104,267.50	56,558.00	1,816,573.75	753.85	7,199.75	66,827.90	1,090.34	150.25	165.50	2,150,108.34

P O O L S F Y 1 9 8 2

	<u>CHILDREN</u>	<u>ADULTS</u>	<u>PASSES</u>	<u>LOCKERS</u>	<u>PAY PHONE</u>	<u>CONCESSION</u>	<u>MISC.</u>	<u>TOTALS</u>
AGAWAM	1,674.80	1,260.50				125.67		3,060.97
ATTLEBORO	2,460.95	1,477.25		24.90				3,963.10
BROCKTON	3,162.30	2,014.25		84.60	9.11	165.00		5,435.26
CHICOPEE	1,699.65	732.75				5.35		2,437.75
CLINTON	1,665.85	495.50		73.15		50.00		2,284.50
FALL RIVER	3,700.35	621.00		20.00		500.00		4,841.35
FITCHBURG	1,818.55	647.50						2,466.05
HOLYOKE	1,265.05	523.25				50.00		1,838.30
LAWRENCE	2,754.75	1,250.00			12.12	165.89		4,182.76
LEOMINSTER	1,144.55	291.75		42.70		51.00		1,530.00
LOWELL	1,852.70	262.50						2,115.20
LUDLOW	1,317.30	275.75				102.20		1,695.25
MILFORD	1,628.10	699.25			15.10	103.00		2,445.45
SOUTHBRIDGE	1,390.65	244.25				5.35		1,640.25
SOUTH HADLEY	972.65	560.00				5.35		1,538.00
SPRINGFIELD	1,418.90	218.75				5.35		1,643.00
WESTFIELD	1,693.85	779.25				156.15		2,629.25
WORCESTER #1	2,266.60	1,057.25		216.90		520.00		4,060.75
WORCESTER #2	2,286.65	1,276.75		37.20		800.00		4,400.60
TOTALS	36,174.20	14,687.50		499.45	36.33	2,810.31		54,207.79

P A R K S F Y 1 9 8 2

	<u>PARKING TICKETS</u>	<u>CAMPING RECEIPTS</u>	<u>SEASON PASS</u>	<u>BUS TICKETS</u>	<u>ADULT WALK-INS</u>	<u>HOUSE RENT</u>	<u>CHILDREN ROLL TYPE</u>	<u>COTTAGE PERMITS</u>	<u>CONCESSION</u>	<u>MISC.</u>	<u>PAY PHONE</u>	<u>PIER PERMITS</u>	<u>GROUP</u>	<u>TOTAL</u>
AMES NOWELL	1,608.00		60.00	20.00					78.00					1,688.00
ASHLAND	3,500.00		840.00					1,950.00						4,418.00
ASHMERE LAKE									5.35		16.16			1,950.00
BEARTOWN	3,015.00	4,949.00	745.00	60.00	36.50	726.00								9,553.01
BORDERLAND						2,184.00								2,184.00
BOSTON HARBOR ISLANDS										15,207.50			930.00	15,207.50
BRADLEY PALMER	4,226.00		455.00	20.00		3,853.50								9,484.50
BUFFUMVILLE	1,538.00		375.00	20.00	12.50	5,437.00					97.53			1,945.50
CARLISLE														5,534.53
CHESTER GARDNER	1,749.00	300.00	145.00		84.25									2,278.25
CHICOPEE	20,575.00		5,070.00	160.00	137.25		132.15		602.00					26,676.40
CLARKSBURG	2,873.00	3,285.00	1,425.00	60.00	14.50		10.20		10.70	300.00				7,978.40
COCHITUATE	61,179.00		11,690.00	640.00	1,227.95				3,000.00			2,321.00		80,057.95
D.A.R.	5,398.00	15,195.00	1,385.00						210.11					22,188.11
DEAN POND (BRIMFIELD)	4,416.00	324.00	1,360.00	20.00	26.75				5.35	1,000.00				7,152.10
DENAREST LLOYD	15,195.00		3,740.00	20.00					50.00					19,005.00
DIGHTON ROCK	815.00		505.00	60.00										1,380.00
DOUGLAS	16,168.00		3,675.00	700.00										20,543.00
ERVING	8,513.00	6,241.00	3,145.00	545.00	250.00				105.00	100.00				18,899.00
FEDERATED WOMEN'S	42.00													42.00
FREETOWN	1,029.00		150.00			960.00			16.50					2,155.50
GRANVILLE	1,359.00	3,494.00	15.00											4,868.00
HAMPTON POND	13,740.00		3,205.00	100.00	600.00	522.00	47.40		151.15					18,365.55
HAROLD PARKER	8,421.00	47,583.00	420.00								170.59			56,594.59
HOLLAND POND	4,102.00		1,180.00	20.00					5.35					5,307.35
HOPKINTON	74,750.00		18,705.00	738.00					5,072.10			96.00	585.00	99,946.10
LAKE DENNISON	5,493.00	38,230.00	1,645.00						90.00					45,458.00
LEONINSTER	6,666.00		3,135.00		6.00				610.00					10,417.00
MARTHA'S VINEYARD						596.00								596.00
MASSASOIT	3,678.00	46,880.00	480.00						86.50		79.62			51,204.12
MOHAWK TRAIL	4,250.00	18,847.00	305.00											23,402.00
MT. GRACE	745.00		35.00									120.00		900.00
MT. GREYLOCK	263.00	6,662.00							5.35	23,692.07				30,622.42
MT. WASHINGTON	457.00													457.00
MYLES STANDISH	17,565.00	113,787.00	485.00	740.00		1,301.25		37,285.00	556.00	300.00	335.73			172,354.98
NICKERSON	3,000.00	233,756.00						480.00	600.00		851.87			238,207.87
OTIS RESERVOIR														480.00
OCTOBER MOUNTAIN	476.00	15,001.00												15,477.00
OTTER RIVER	1,581.00	12,496.00	585.00								23.37			14,700.37
PITTSFIELD	3,400.00	7,801.00	310.00	40.00					15.00	275.00				11,831.35

	PARKING TICKETS	CAMPING RECEIPTS	SEASON PASS	BUS TICKETS	ADULT WALK-INS	HOUSE RENT	CHILDREN ROLL TYPE	COTTAGE PERMITS	CONCESSION	MISC.	PAY PHONE	PIER PERMITS	GROUP	TOTAL
QUINSGAMOND/LAKE	1,300.00				1,850.00				837.00	2,858.00	Includes Football & Tennis			6,845.00
QUINSGAMOND/REGATTA	3,625.00		1,655.00		1,455.50									6,735.50
ROBINSON	5,232.00		850.00	220.00					56.99	75,000.00				81,358.99
RUTLAND	8,288.00		2,375.00	80.00					101.50					10,844.50
SANDISFIELD	2,885.00	27.00 (backpack)	1,525.00		4.65				5.35					4,447.00
SAVOY MOUNTAIN	1,920.00	16,128.00	450.00		1.00	517.00			15.70					18,514.70
SHAWME CROWELL	22.00	82,567.00							181.66	11,880.00 (Town of Sandwich)				95,301.17
SKINNER						864.00			50.00					914.00
SPENCER	2,908.00		445.00		9.50									3,362.50
TOLLAND	7,713.00	30,938.00	800.00	20.00	1.00	159.00								39,631.00
TULLY REC. AREA		1,723.00												1,723.00
UPTON						570.00				7,000.00				570.00
WACHUSETT MOUNTAIN	101,633.00		13,920.00	120.00		3,471.00		10,000.00	4,602.00		46.61			20,471.00
WALDEN POND	496.00		60.00			216.00								120,537.61
WARREN MANNING	7,275.00		1,075.00		76.25		9.00		131.50					556.00
WATSON POND	665.00	23,802.00							36.87		.15			8,566.90
WELLS					18.25				90.03					24,503.87
WELL-STREETER	4,456.00		2,505.00		10.75				5.35					7,069.28
WENDELL	1,594.00		1,060.00		12.50	342.00			687.00					2,670.10
WILLARD BROOK	9,881.00	8,514.00	2,565.00											22,001.50
PEARL HILL	5,364.00	6,896.00	2,190.00	20.00					5.00					14,470.00
WINDSOR	2,181.00	3,226.50	460.00	40.00	1.50	3,762.00				436.00				5,914.00
WOMPATUCK	268.00	61,616.00												66,082.00
TOTALS	469,491.00	810,268.50	97,205.00	4,463.00	5,836.60	25,480.75	198.75	49,715.00	18,085.76	138,048.57	1,755.14	2,417.00	1,635.00	1,624,600.07

	<u>TRAILER</u>	<u>LAUNDRY</u>	<u>SEASON PASS</u>	<u>CONCESSION</u>	<u>MISC.</u>	<u>TOTAL</u>
OFFICE ACCOUNT			175.00	18,130.00	65,489.24	83,794.24
WALDEN BREEZES	<u>18,540.00</u>	<u>1,119.25</u>				<u>19,659.25</u>
TOTALS	18,540.00	1,119.25	175.00	18,130.00	65,489.24	103,453.49

1982 FISCAL YEAR
ATTENDANCE RECORD

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
JAMES NOWELL	--	13,375	12,737	638	13,375
ASHLAND	--	14,956	13,037	1,919	14,956
BEARTOWN	4,896	29,234	23,316	5,918	34,130
BORDERLAND	--	47,089	47,089	--	47,089
BOSTON HARBOR ISLANDS	1,565	22,945	22,945	--	24,510
BRADLEY PALMER	--	71,260	63,878	7,382	71,260
BUFFUMVILLE	--	16,761	11,652	5,109	16,761
CALLAHAN, RAYMOND J.	--	28,710	28,710	--	28,710
CAMPBELL FALLS	--	8,755	8,755	--	8,755
CAPE COD RAIL TRAIL	--	73,674	73,674	--	73,674
CATAMOUNT	--	--	--	--	--
CHESTER	40	3,249	3,249	--	3,289
CHICOPEE	--	119,173	50,172	69,001	119,173
CLARKSBURG	2,703	7,885	2,398	5,487	10,588
COCHITUATE	--	173,284	48,264	125,020	173,284
CONNECTICUT RIVER RAMP	--	--	--	--	--
CONWAY	--	--	--	--	--
COOKSON	--	5,275	5,275	--	5,275
D.A.R.	12,809	31,075	10,835	20,240	43,884
DEAN POND, BRIMFIELD	--	25,543	12,103	13,440	25,543
DEMAREST LLOYD	--	52,447	14,162	38,285	52,447
DENNISON LAKE	35,963	76,546	57,062	19,484	112,509
DIGHTON ROCK	--	10,476	9,009	1,467	10,476
DOUGLAS	--	84,421	43,383	41,038	84,421

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
ERVING	5,498	39,457	23,281	16,176	44,954
EAST MOUNTAIN	--	--	--	--	--
FED. WOMENS CLUB	433	12,446	12,446	--	12,879
F. G. HILLS	--	4,591	4,591	--	4,591
FREETOWN	--	15,312	12,890	2,422	15,312
GARDNER	--	8,098	3,125	4,973	8,098
GEORGETOWN-ROWLEY	--	--	--	--	--
GRANVILLE	6,532	15,162	10,152	5,010	21,694
GREAT BROOK FARM-CARLISLE	--	49,995	49,995	--	49,995
HAMPTON PONDS	--	64,042	27,008	37,034	64,042
HAROLD PARKER	29,852	44,784	30,220	14,564	74,636
HAWK'S NEST	--	--	--	--	--
HAWLEY-DUBUQUE	--	26,179	26,179	--	26,179
HOLLAND POND	--	33,860	24,256	9,604	33,860
HOLYOKE RANGE	--	--	--	--	--
H. O. COOK	--	--	--	--	--
HOPKINTON	--	187,741	151,267	36,474	187,741
LEOMINSTER	--	46,150	23,640	22,510	46,150
LOWELL-DRACUT	--	18,824	18,824	--	18,824
LOWELL HERITAGE	--	164,420	164,420	--	164,420
LUDLOW	--	--	--	--	--
MARTHA'S VINEYARD	--	57,772	57,772	--	57,772
MASSASOIT	38,410	22,195	17,505	4,690	60,600
MOHAWK TRAIL	10,661	109,358	101,215	8,143	120,019

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
MONROE	--	--	--	--	--
WOORE	--	17,097	17,097	--	17,097
MT. EVERETT	--	45,862	45,862	--	45,862
MT. GRACE	--	19,545	17,630	1,915	19,545
MT. GREYLOCK	9,570	206,495	204,890	1,605	216,065
MT. SUGARLOAF	--	43,709	43,709	--	43,709
MT. WASHINGTON	1,400	90,483	90,483	--	91,883
MYLES STANDISH	81,338	71,644	36,600	35,044	152,982
NANTUCKET	--	--	--	--	--
NICKERSON	207,257	78,377	78,377	--	285,634
NORTHFIELD	--	--	--	--	--
OCTOBER MT.	7,314	29,107	28,808	299	36,421
OTIS	--	--	--	--	--
OTTER RIVER	18,448	28,812	22,603	6,209	47,260
PEARL HILL	5,133	18,186	7,376	10,810	23,319
PERU	--	--	--	--	--
PETERSHAM	--	--	--	--	--
PITTSFIELD	5,271	96,657	88,725	7,932	101,928
PLUM ISLAND	--	130,557	130,557	--	130,557
PURGATORY CHASM	--	65,692	65,692	--	65,692
QUINSIGAMOND-REGATTA	--	107,588	96,736	10,852	107,588
QUINSIGAMOND-LAKE PARK	--	44,426	33,640	10,786	44,426
RED BRIDGE	--	--	--	--	--
ROBINSON	--	21,757	7,800	13,957	21,757

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
RUTLAND	--	37,271	21,876	15,395	37,271
SANDISFIELD	--	29,215	17,782	11,433	29,215
SAVOY	9,350	30,824	26,083	4,741	40,177
SHAWME-CROWELL	55,861	24,150	24,150	--	80,011
SKINNER	--	124,870	124,870	--	124,870
SOUTH CAPE BEACH	--	--	--	--	--
SOUTH RIVER	--	--	--	--	--
SPENCER	--	17,434	11,036	6,398	17,434
STANDISH MONUMENT	--	11,583	11,583	--	11,583
STREETER	--	49,946	33,026	16,920	49,946
TACONIC FALLS	--	--	--	--	--
TOLLAND	24,185	57,753	40,042	17,711	81,930
TULLY RECREATION AREA	2,812	11,911	11,911	--	14,723
UPTON	--	18,725	18,725	--	18,725
WACHUSETT MOUNTAIN	--	207,735	207,735	--	207,735
WAHCONAH FALLS	--	42,334	42,334	--	42,334
WALDEN POND	--	566,883	168,567	398,316	566,883
WARREN MANNING	--	2,660	1,540	1,120	2,660
WARWICK	--	--	--	--	--
WATSON	--	19,394	2,929	16,465	19,394
WEBB	--	40,333	40,333	--	40,333
WENDELL	--	19,880	13,125	6,755	19,880
WELLS	15,727	21,500	20,528	972	37,227
WEST LAKE	--	4,931	4,869	62	4,931
WHITEHALL	--	10,890	10,890	--	10,890

AREA	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
WILLARD BROOK	6,090	38,508	12,223	26,285	44,598
WILLOWDALE	--	42,793	42,793	--	42,793
WINDSOR	3,537	11,897	7,195	4,702	15,434
WOMPATUCK	57,080	461,845	461,845	--	518,925
TOTAL	659,735	4,857,778	3,715,066	1,142,712	5,505,103

BEACH AREAS	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
FT. PHOENIX	--	46,443	19,720	26,723	46,443
HORSENECK	36,692	658,250	163,582	494,668	694,524
SALISBURY	158,969	1,124,005	993,100	130,905	1,282,979
SCUSSET	59,240	146,781	68,425	78,356	206,702
TOTAL	254,901	1,975,479	1,244,872	730,652	2,230,802

TOTAL ATTENDANCE AT ALL FORESTS, PARKS, RESERVATIONS AND BEACHES	CAMPING	DAY-USE	NON-PAID	PAID	TOTAL
TOTAL	914,636	6,833,257	4,959,893	1,873,364	7,747,140

NON-PAID ATTENDANCE IS MADE UP OF SPECIAL USE PERMITS PLUS LARGE NUMBERS OF USERS SUCH AS THOSE VISITING VISTAS, BICYCLISTS, HUNTERS, FISHERMEN AND OTHER PASSIVE USERS.

SKATING RINKS	DAY-USE	TOTAL
AUBURN	163,709	163,709
BROCKTON	221,223	221,223
FALL RIVER	128,754	128,754
FRANKLIN	148,056	148,056
GARDNER VETERANS	91,217	91,217
GREENFIELD	79,981	79,981
HAVERHILL	87,086	87,086
HOLYOKE	143,594	143,594
LOWELL	141,676	141,676
MARLBORO	137,277	137,277
NEW BEDFORD	145,418	145,418
NEWBURYPORT	130,956	130,956
NORTH ADAMS	68,447	68,447
PEABODY	140,120	140,120
PLYMOUTH	116,310	116,310
SPRINGFIELD	138,286	138,286
TAUNTON	87,775	87,775
WORCESTER	106,850	106,850
TOTAL	2,276,735	2,276,735

SWIMMING POOLS	DAY-USE	TOTALS
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AGAWAM	18,336	18,336
ATTLEBORO	24,714	24,714
BROCKTON	42,806	42,806
CHICOPEE	17,743	17,743
CLINTON	25,111	25,111
FALL RIVER	27,971	27,971
FITCHBURG	20,315	20,315
HOLYOKE	12,904	12,904
LAWRENCE	23,395	23,395
LEOMINSTER	21,803	21,803
LOWELL	13,762	13,762
LUDLOW	13,164	13,164
MILFORD	19,576	19,576
SOUTHBRIDGE	14,216	14,216
SOUTH HADLEY	10,290	10,290
SPRINGFIELD	17,795	17,795
WESTFIELD	12,672	12,672
WORCESTER #1 (SHINE)	35,277	35,277
WORCESTER #2	38,565	38,565

	CAMPING	DAY-USE	TOTAL
TOTAL ATTENDANCE AT ALL FACILITIES	914,636	9,520,407	10,435,043

DIVISION OF FORESTS AND PARK
RECREATION BUDGET

2120-0300

<u>SUB</u>	<u>TOTAL</u>
01	183,486.00
02	194,796.00
010	14,375.00
011	27,414.00
012	4,400.00
013	2,017.00
014	3,327.00
016	10,765.00
TOTAL - 0300	<u>440,580.00</u>

2120-0400

<u>SUB</u>	<u>TOTAL</u>
01	1,736,620.00
02	2,689,456.00
03	50,000.00
05	7,867.00
06	17,633.00
07	2,639.00
08	355,034.00
09	10,930.00
010	208,201.00
012	209,833.00

013	110.00
014	801.00
015	63,560.00
016	14,620.00
TOTAL - 0400	<u>5,367,304.00</u>

2120-0500

<u>SUB</u>	<u>TOTAL</u>
02	3,599,183.00
03	5,720.00
05	15,750.00
06	23,300.00
07	59,440.00
08	1,381,819.00
09	6,545.00
010	50,600.00
012	334,508.00
014	5,500.00
015	23,800.00
016	15,000.00
TOTAL - 0500	<u>5,521,165.00</u>

2120-0600

<u>SUB</u>	<u>TOTAL</u>
01	65,076.69
02	818,819.31
03	12,500.00

05	4,100.00
06	5,500.00
07	2,013.00
08	116,679.00
09	1,634.00
010	24,000.00
012	46,205.00
014	1,000.00
015	22,450.00
016	3,000.00
TOTAL - 0600	<u>1,122,977.00</u>

2120-1600

<u>SUB</u>	<u>TOTAL</u>
013	58,850.00
TOTAL - 1600	<u>58,850.00</u>

FOREST CUTTING PRACTICES

This year the amended Forest Cutting Practices Act was submitted to the Senate by Senator Robert Wetmore, a member of the Joint Legislative Committee on Natural Resources. Amendments to the existing law, which have been worked on since 1978, have been plagued by several unsuccessful filings by the Department of Environmental Management.

In general, the forestry community is in support of the recommendations made in the "Report of the Massachusetts Forestry Program Review Board" of February 1979, relative to Ch. 132, sections 40 - 46.

The changes include the appointment of a state Forestry Committee to consist of eight members representing various sectors of the forestry community. The Director of the Division of Forests and Parks is to be an ex-officio member of the Committee and shall vote only in the event of a tie. This Committee shall prepare tentative minimum forest cutting practices and guidelines designed to achieve all multiple use objectives set out in section 40. The notification of all abutting landowners and conservation commissions of the town in which the land lies prior to commencing proposed cutting operations is required in section 42. The entire forestry community agrees that both the Department of Environmental Management and the town officials should be notified prior to commencing cutting operations. However, concern has been expressed that notification of abutters is unworkable, especially in urban/suburban areas, where abutting landholders are many.

It is essential that foresters be able to prepare forest cutting plans that address today's environmental concerns and represent best management practices for a forested parcel.

It is agreed that in order to promote sound forestry practices throughout the Commonwealth, the proposed amendments must be implementable as well as enforceable.



The Commonwealth of Massachusetts

Department of Environmental Management

Division of Forests and Parks

*Leverett Saltonstall Building, Government Center
100 Cambridge Street, Boston 02202*

NOTICE

TO: Mayors and Boards of Selectmen,
All Massachusetts Communities

SUBJECT: Gypsy Moth Policy - 1982

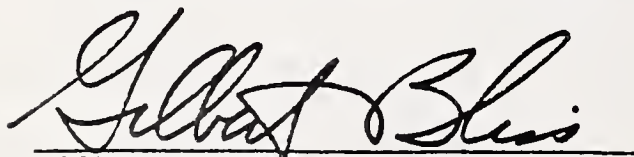
DATE: January 29, 1982

Attached for your information and assistance are the 1982 Gypsy Moth policy recommendations.

We wish to emphasize the intent of this policy as a strong recommendation that *Bacillus thuringiensis* (B.t.) be used as the control material to be considered in publicly funded and conducted programs.

It is the opinion of this agency that use of this material most responsibly addresses both the documented concerns of a need for nuisance control and protection of the public.

As details regarding financial assistance programs are finalized, notice of application procedures will be publicly announced.


Gilbert A. Bliss
Director of Forests and Parks


William F. M. Hicks
Commissioner of Environmental Management

WFMH/GAB/ed



The Commonwealth of Massachusetts

Department of Environmental Management

Division of Forests and Parks

Leverett Saltonstall Building, Government Center

100 Cambridge Street, Boston 02202

GYPSY MOTH POLICY-1982

RECOMMENDATIONS TO MASSACHUSETTS COMMUNITIES

The following recommendations are provided by the Department of Environmental Management as information and assistance to the communities of the Commonwealth in decision making relative to the current gypsy moth outbreak. No attempt is made to influence the decision as to whether local conditions warrant a control program. The purpose here is to present what is felt to be, all things considered, the best approach if control measures are to be considered.

GYPSY MOTH POPULATION-STATUS

Information gathered during 1981 indicates that the current outbreak will continue during the 1982 season, although the total area should not be as extensive or severe. At the request of various communities egg mass survey work has been completed and it is now possible to predict with reasonable accuracy where problems will exist in 1982. Map A, included, indicates in general, results of this egg mass survey.

With the above information in hand it then becomes a local decision as to whether a control program is warranted or not. Local decision making will also determine the control material and method of application to be used. Department personnel are available to assist in the planning and to give technical advice when needed.

Map B, included in this publication, indicates the results of the 1981 aerial survey which is conducted annually to determine the extent of current defoliation by the gypsy moth in Massachusetts. This map does not necessarily indicate problem areas to be expected in 1982.

BACKGROUND

Policy recommendations issued annually by the Department are based on the Final Environmental Impact Report completed in 1981. All facets of the gypsy moth problem have been studied and reviewed, including control alternatives. The Report will be updated periodically. When new information becomes available, particularly that pertaining to control procedures, it will become part of the Report and be included in future Policy,

RECOMMENDATION

A) Until such time as new information is available, this Department will continue to advocate that a strong emphasis be placed on the biological pest management approach to gypsy moth control. Communities are strongly advised, when deliberating the gypsy moth problem, to use a product containing Bacillus thuringiensis as the control agent. The use of chemical pesticides should only be carefully considered if a community is faced with extremely high gypsy moth populations. Chemical control agents must always be reviewed on the basis of causing some environmental damage. In no case does the Department advise BROAD SCALE use of chemical pesticides. The reasons are two-fold: (1) experience indicates that on an overall statewide basis the percentage of mortality inflicted on the forests by the gypsy moth is small; (2) a reliance is placed on the established natural controls over a majority of infested areas.

B) Should, however, a community select a chemical control agent to alleviate the gypsy moth problem it is recommended that one of the products as noted on the following charts be selected. Timing of application must be correct according to larval developments. Label directions must be carefully followed. Those products are included on the following two charts as a further aid in local decision making.

COMMUNITY FINANCIAL ASSISTANCE POSSIBILITIES

The Department has requested financial assistance to be utilized primarily as assistance to communities, from the U.S. Forest Service for the 1982 infestation. This would be in the form of a reimbursement to communities of a percentage of costs under a program of aerial suppression approved in advance by Department of Environmental Management. Access to funds would be by adherence to Commonwealth policies and special project guidelines. It is expected that funds will be insufficient to deal with all requests thus requiring the establishment of priorities by the Department of Environmental Management. Communities will be advised as to the time for making formal application.

The possibility of special state funding to assist communities in a program involving ground application of biological controls is being explored but its availability is not determined as of this date.

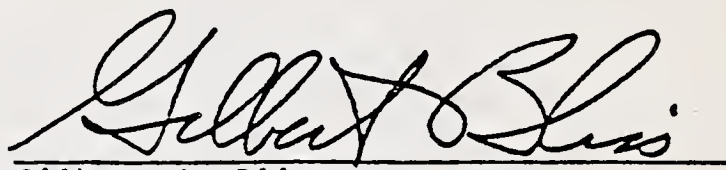
WAYS TO MINIMIZE IMPACT

1. Make sure the application is on target. Ways to assure a minimum amount reaching non-target areas include:
 - application in low wind conditions and not immediately prior to rain;
 - use of well-calibrated equipment which results in an even, carefully directed, release;
 - a clear understanding on the part of the applicator of the locations and borders of target areas;
 - the allowance of sufficient buffer zones to incorporate drift.
2. Keep the pest control agent away from water. This is particularly important in the application of carbaryl (which can harm aquatic invertebrates) and diflubenzuron and trichlorfon (which can harm both fish and aquatic invertebrates). This means an avoidance (with sufficient buffer zones) of major surface waters, as well as known conduits to groundwater. Areas which are dotted with small unavoidable surface streams or ponds should be excluded as target areas.
3. Minimize direct contact with humans. Townspeople should be notified sufficiently in advance of application to assure that clothing, toys, etc., are not left outside. Application should be made at dawn or some other time when human outdoor activity is at a minimum. Campers, youth groups, and other in-state controlled areas should be asked to vacate the area temporarily. To minimize exposure to the applicator, protective equipment such as gloves, disposable clothing and/or masks should be used as recommended by the label. Contaminated clothing should be washed separately.
4. Minimize other potential effects. Beekeepers should be given warning prior to the application of carbaryl or acephate. Open areas and edge habitats which might be inhabited by small mammals, birds, and other wildlife should be avoided in the applications of carbaryl, acephate, diflubenzuron and trichlorfon. Also, prior to the application of any of these chemicals, a list of susceptible plants should be published to enable householders and farmers to take protective action.

Regulations of the Massachusetts Pesticide Board should be referred to for more detailed information.

SUMMARY

Although all of the products mentioned are registered for use against the gypsy moth, the Department is continuing to place the Commonwealth on a course of recommendations that support the use of biological controls. Continued research and the development of improved application techniques are increasing the efficacy of B.t. resulting in less dependency upon chemicals.



Gilbert A. Bliss
Director of Forests and Parks

Approved:



William F. M. Hicks
Commissioner

January 29, 1982

Toxicological Information

Material	Acute Toxicity		Chronic Toxicity			Fish	Invertebrates	Birds	Mammals	Beneficial Insects	Plants
	Oral	Dermal	Carcino-genecity	Terato-genecity	Muta-genecity						
NPV	0	0	0	0	0	*	*	0	0	0	0
B.t.	0	0	0	0	0	0	*	0	0	0	0
Carbaryl	0	0	0	?	X	?	X	?	X (deer)	Bees, Parasites	Boston Ivy
Orthene	0	0	0	0	?	0	*	X	*	X Bees & Others	X Apple, Elm & Maple
Dimilin	0	0	?	0	*	X	X	?	*	*	0
Dylox	0	0	*	*	*	X	X	0	0	X	X Apple, Carnation & Zinnia

* There is no evidence of mutagenic effects of Dimilin. * Insufficient information available.

There is some evidence of mutagenic activity of two metabolites.

KEY

X = Probable areas of concern

? = May be an area of concern

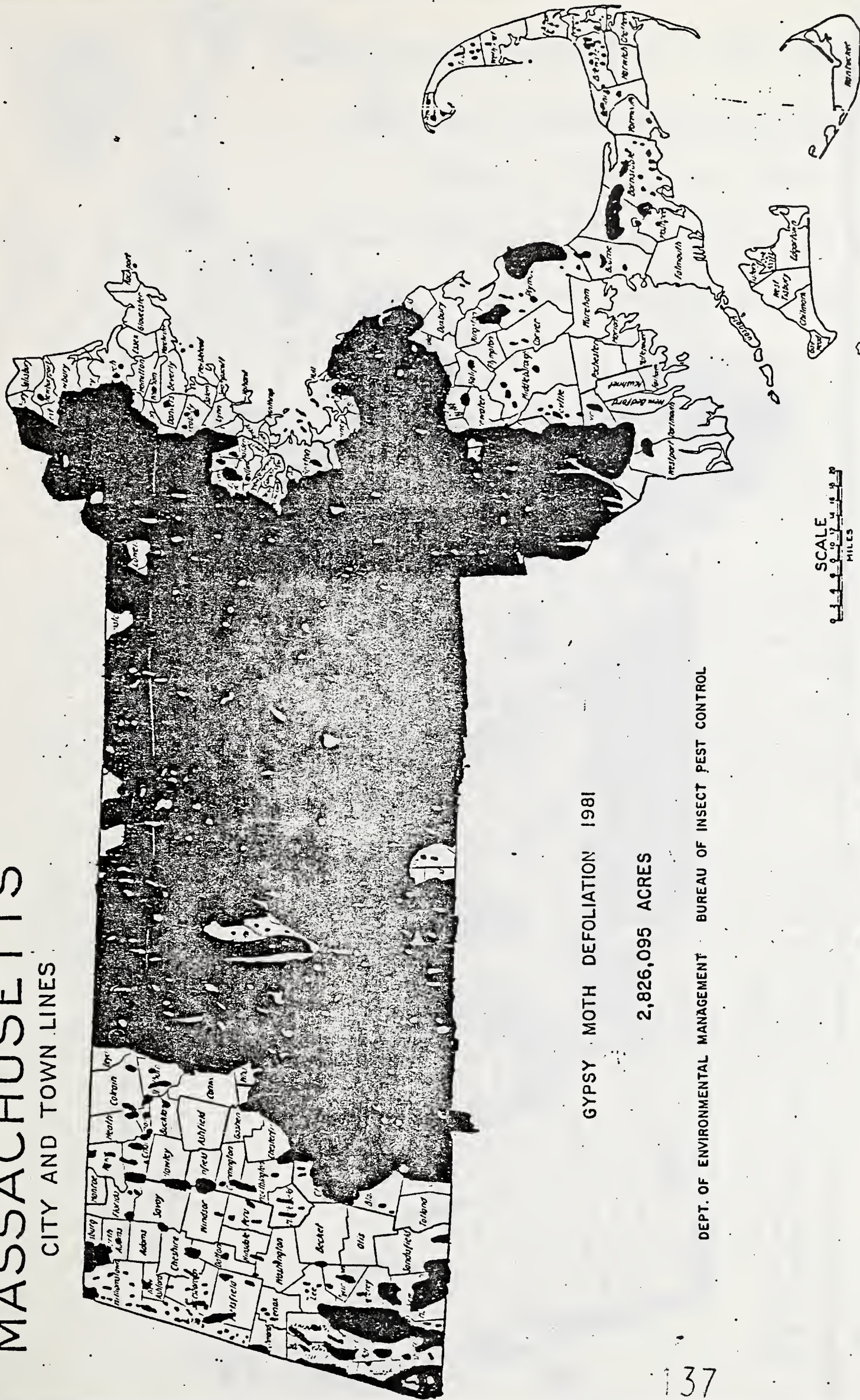
0 = Not an area of concern

Material or Method	Rate Per Acre	Efficacy	Consistency of Results	Cost Per Acre (Aerial)	Ease of Application	Availability	Generally Viable Alternative - 1980	Comments
Inundative release of parasites		0-25%	?	High	Difficult	Need facilities to rear	No	
Establish new species of parasites		Varies	Continuous if established	Moderate	Simple	Only to governmental agencies	No	On going programs in Massachusetts
Gypcheck	2 applications	Erratic	Erratic	High	Simple	Only to governmental agencies	No	
Bacillus thuringiensis	1 pound twice	51-75%	Erratic	(1978) \$13.50	Simple	Yes	Yes	
Disparlure	?	?	?	?	Simple	No	No	Effective only in low populations
Sterile Male Release		?	?	High	Difficult	Need Facilities	No	On going research
Sevin	1 pound	76-100%	Good	\$3.50 (1978)	Simple	Yes	Yes	Refer to chart on Toxicology
Dylox	1 pound	76-100%	Good	\$5.50	Simple	Yes	Yes	Refer to chart on Toxicology
Orthene	0.5 pound	76-100%	Good	\$7.00	Simple	Yes	Yes	Refer to chart on Toxicology
Dimilin	.03 to .05 pound	76-100%	Good	\$5.00-\$7.00	Simple	Yes	Yes	Only on Forested Area

* 25.0 to 125 million potency units/A

MASSACHUSETTS

CITY AND TOWN LINES



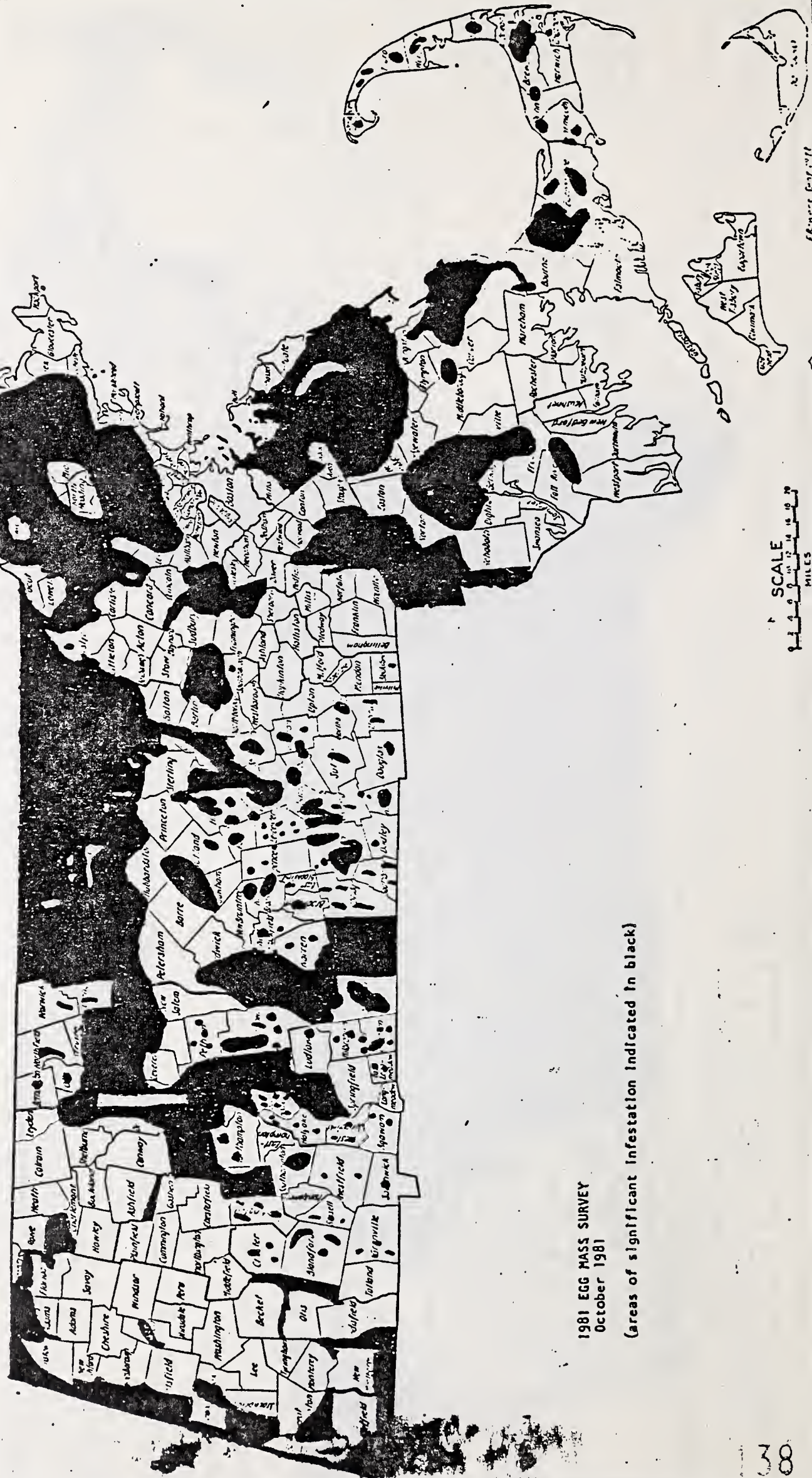
GYPSY MOTH DEFOLIATION 1981

2,826,095 ACRES

DEPT. OF ENVIRONMENTAL MANAGEMENT BUREAU OF INSECT PEST CONTROL

MASSACHUSETTS

CITY AND TOWN LINES



1981 EGG MASS SURVEY
October 1981

(Areas of significant infestation indicated in black)



The Commonwealth of Massachusetts

Department of Environmental Management

Division of Forests and Parks

Leverett Saltonstall Building, Government Center

100 Cambridge Street, Boston 02202

M E M O R A N D U M

TO:

FROM: , District Supervisor, Insect Pest Control

SUBJECT: Gypsy Moth

In keeping with past policy, the Bureau of Insect Pest Control is again offering its assistance to cities and towns of the Commonwealth in the continuing battle with the gypsy moth. At the present time that assistance is in the form survey, detection, technical advice and recommendations.

The recently completed aerial survey indicates that your community experienced gypsy moth defoliation in 1981. It can be speculated at this time that a good possibility exists that we can expect a continuation of the problem in many areas in 1982. To determine the potential that exists in your community requires the completion of an egg mass survey.

When the survey has been completed the community then has a base from which decisions such as need for control, extent of control, method to be employed, etc. can be made. The Bureau stands ready to assist in this decision making if that is your desire. The Bureau is also available to discuss alternative control measures including biological as well as chemical insecticides.

If it is your desire to request Bureau assistance in conducting an egg mass survey please contact me. I can be reached as follows:



The Commonwealth of Massachusetts

Department of Environmental Management

Division of Forests and Parks

*Leverett Saltonstall Building, Government Center
100 Cambridge Street, Boston 02202*

July 31, 1981

Allen J. Schacht, Area Director
Northeastern Area State and Private Forestry
U.S. Forest Service
370 Reed Road
Broomall, PA 19008

Dear Director Schacht:

Consider this as a letter of intent to request funding for a Cooperative Gypsy Moth Suppression Project on 1982.

At this early stage and without benefit of a survey to assess the situation in order to predict 1982 problem areas, it is estimated that 40,000 acres be proposed for treatment to control the gypsy moth.

Estimated total project cost is established at \$1,200,000 or \$30.00 per acre.

In keeping with the present policy of this Department the insecticide to be used will be *Bacillus thuringiensis* except where certain conditions warrant the use of chemicals such as Sevin or Orthene. Application will be made by means of helicopter.

Arrangement has been made for a public "scoping" session to be held at 7:30 in the evening on Tuesday, October 20, 1981. The place will be in the auditorium of the New England Power Service Co., located at 25 Research Road (off Rt. 9), Westboro, MA.

Thanking you in advance for your consideration of this letter of intent I remain.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "Gilbert A. Bliss".
Gilbert A. Bliss
Director of Forests and Parks

GAB:CSH:cm

PRELIMINARY SURVEY

GYPSY MOTH MUNICIPAL AERIAL SPRAYING PROGRAMS

The following information is requested to update our records regarding municipal intentions to proceed with aerial spraying for gypsy moth control during the spring of 1982.

Town/City _____

Contact Person _____

Title/Agency _____

Address _____

Telephone _____

1. Do you intend to proceed with an aerial spraying program to control gypsy moth during 1982? yes _____ no _____ If so, how many acres? _____
2. Has your intention to proceed been approved by the Board of Selectmen or similar body, or in town meeting? yes _____ no _____ Have funds been authorized, or appropriated for the program? yes _____ no _____ If so, how much? _____. Anticipated but not yet appropriated? _____
3. What materials and formulations do you expect to use?

4. With assistance from the Bureau of Insect Pest Control, would you be willing to coordinate with neighboring towns in securing contracts for aerial spraying and during actual application? yes _____ no _____
5. Please describe below any ground application program you anticipate. Please include approximate acreage, types of materials, and approximate costs.

6. Comments _____

Please return immediately to:

Charles S. Hood, Chief
Bureau of Insect Pest Control
Division of Forests and Parks
100 Cambridge Street, 19th Floor
Boston, Massachusetts 02202

Tel: 617-727-3184

ATTACHMENT AG

FINANCIAL STATUS REPORT

GYPSY MOTH GROUND CONTROL AND SUPPRESSION PROGRAM

City/Town of _____

Date: _____

Number of days worked _____ for the period _____ to _____
mo/da/yr mo/da/yr

- | | |
|---|-------------|
| I. <u>Personnel Costs</u>
(Labor charges incurred, but only
incurred during direct application) | I. _____ |
| II. <u>Fringe Benifits</u>
(use municipal rate if allowed) | II. _____ |
| III. <u>Travel</u>
(expenses for monitoring,
coordiantion, etc.) | III. _____ |
| IV. <u>Supplies</u>
(ballons, pesticides, etc.) | IV. _____ |
| V. <u>Equipment</u>
(costs for lease or rental
of equipment, purchases will
generally not be allowed.) | V. _____ |
| VI. <u>Contracted</u>
(all contracts for spraying.) | VI. _____ |
| VII. <u>Other</u>
(any costs which do not readily
fall into the above categories) | VII. _____ |
| VIII. Total Direct Cost | VIII. _____ |

Total Acreage Treated _____

Material Used _____
(B.t. or other)

I certify that the above information is accurate and is a true statement of costs
and expenditures incurred in the gypsy moth ground control and suppression program.

Local Superintendant of Insect Pest
Control

Town Treasurer

DATE: _____

DATE: _____

APPROVED:

District Supervisor, IPC

Chief, Insect Pest Control



The Commonwealth of Massachusetts

Department of Environmental Management

Division of Forests and Parks

*Leverett Saltonstall Building, Government Center
100 Cambridge Street, Boston 02202*

1982 GYPSY MOTH CONTROL REIMBURSEMENT PROGRAMS

Partial reimbursement for aerial and ground control (B.t. only) is available from the Division of Forests and Parks, Bureau of Insect Pest Control, during 1982. For the use of *Bacillus thuringiensis* in aerial control programs, municipalities can receive reimbursement for 12½% to 30% of the total acreage treated, based on the average cost per acre which cannot exceed \$14.30. For the use of carbaryl in aerial programs, municipalities can receive reimbursements for 12.5% of total acreage treated, based on an average cost per acre not to exceed \$14.30.

For ground controls using *Bacillus thuringiensis* only, municipalities can receive up to 50% reimbursement based on total costs, but only those costs directly incurred during application of the material. No reimbursement program is available for any ground control using a material other than B.t.

Exact percentages for reimbursement of aerial and ground control using *Bacillus thuringiensis* will be determined once all municipal programs are finalized, but is expected to approach the 30% of total acreage for aerial and 50% of total cost for ground control.

A few examples of how reimbursement will be calculated follow .

Aerial Spraying Programs

Use of *Bacillus thuringiensis* (B.t.) :

Example 1)

A community contracts for aerial spraying of 500 acres using a 12 BIU formulation of B.t. Total cost of the contract is \$6,000.00. The Bureau of Insect Pest Control has determined that the percentage of acreage to be reimbursed will be 25 percent.

Total Contract Cost:	\$6,000
Average Cost Per Acre:	$\$6,000 \div 500 \text{ acres} = \12 per acre
Acreage Available for Reimbursement:	$25\% \times 500 \text{ acres} = 125 \text{ acres}$
Reimbursement Calculation:	$125 \text{ acres} \times \$12 \text{ per acre} = \$1,500$

Example 2)

A community contracts for aerial spraying of 500 acres using B.t. with an 8 + 8 formulation (2 applications, 8 BIU). Total cost of the contract is \$16,000. The Bureau of Insect Pest Control has determined that the percentage of acreage to be reimbursed will be 28 percent.

Total Contract Cost: \$16,000
Average Cost Per Acre: $\$16,000 \div 500 \text{ acres} = \32 per acre
Acreage Available for Reimbursement: $28\% \times 500 \text{ acres} = 140 \text{ acres}$
Reimbursement Calculation: $140 \text{ acres} \times \14.30 per acre
(maximum allowed) = \$2,002

Ground Control Using B.t.

A community plans to apply a ground application program to treat the town green, several parks, and streets. Following completion of the ground control program using a 12 BIU formulation, costs are tabulated as follows: purchase of B.t. - \$3,500, local supervisor and crew labor costs during application - \$3,800, advertising (public notice) - \$150, local superintendents labor cost for counting egg masses, handling phone calls and paper work - \$3,220, and rental of mist blower and operator - \$5,000.

The Bureau of Insect Pest Control has determined that the percentage of reimbursement for ground control is 45%.

Allowable Cost Tabulation*

B.t. \$ 3,500
Labor Costs During Application \$ 3,800
Advertising \$ 150
Mist Blower & Operator \$ 5,000
\$12,450

Reimbursement Calculation: $45\% \times \$12,450 = \$5,602$ Total Reimbursement

*Allowable costs would not include Superintendent's hours handling phone calls, counting egg masses, etc. because cost was not directly incurred during actual application of material.

BUDGET APPROPRIATIONS

<u>ACCOUNT NAME</u>	<u>ACCOUNT NUMBER</u>	<u>FY 1981</u>	<u>FY 1982</u>
Forests and Parks Administration	2120-0100	\$ 191,500.	\$ 185,000
Recreation Administration	2120-0300	467,500.	422,123
Promotion of Bicycle Use	2120-0302	50,000.	0
Recreation	2120-0400	4,729,725.	5,367,304
Rinks and Pools	2120-0500	5,110,000.	5,488,529
Salt Water Beaches	2120-0600	977,300.	1,122,977
State Reservations	2120-0700	269,600.	0
Forestry Development	2120-1100	640,000.	653,000
Fire Control	2120-1200	1,235,300.	1,455,899
Insect Pest Control	2120-1300	350,400.	367,715
Gypsy Moth	2120-1400	41,000.	144,000
Urban Services	2120-1500	55,737.	0
Public Transportation Boston Harbor Islands	2120-1600	58,850.	58,850
		<hr/>	<hr/>
TOTAL DIVISION APPROPRIATION		\$14,176,912.	\$15,265,397

